WTCI-125-P

THE PORT AUTHORITY OF NY & NJ

WORLD TRADE CENTER

Architectural and Structural Design Guidelines, Specifications and Standard Details

Architectural

Structural

February 27, 1998

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THE WORLD TRADE CENTER
DESIGN GUIDELINES

STANDARDS FOR ARCHITECTURAL AND STRUCTURAL DESIGN

November 25, 1997

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ARCHITECTURAL DESIGN GUIDELINES

A. GENERAL

The following is a guide for the architectural design requirement and criteria for tenant alterations at the WTC. The scope of the architectural review shall be to ensure compliance with the applicable codes, standards, and WTD Design Criteria.

1. ADA Compliance

All tenant spaces must conform to the latest design criteria established by the Americans with Disabilities Act (ADA), and Local Law # 58. A note specifying compliance should appear in each set of drawings. These requirements include but are not limited to the following:

a) HARDWARE - All hardware must conform to ADA requirements. Lever type knobs and panic bars are recommended for all doors.

b) ACCESS/CORRIDOR DIMENSIONS - All spaces within the tenant area must be equally accessible to the handicapped as specified by the ADA.

c) STROBES - All areas must be furnished with strobe lights (visual alarms). These strobes must be connected to the floor Class 'E' alarm system. See details in the Fire Alarm Design Guidelines.

d) TOILETS - Plans and elevations of the toilet for disabled people shall clearly show all critical dimensions as per ADA requirements.

2. Asbestos

A leasehold may contain vinyl asbestos floor tiles (VAT) which were installed during the initial construction of the World Trade Center. They are probably in good condition and, if not disturbed are safe. If a tenant is planning construction or any modifications which may disturb these tiles, the removal of the VAT is required. The tenant may choose one of the following options for the abatement of the VAT:

a) The tenant may obtain the services of a NYS Department of Labor licensed abatement contractor to remove the VAT. In this case a TAA must be filed with the Tenant Alteration Application Unit of the World Trade Department. Drawings of the required air lock enclosures and specifications for the asbestos removal must be submitted for review with copies of the contractors abatement licence and certificate of insurance.

The tenant is required to submit documentation of the project once completed.

b) The tenant may retain the services of the World Trade Center Call-in abatement contractor. In this case the tenant must submit a written request to World Trade Department. Documentation will be issued to the tenant upon completion of the VAT removal.

3. Egress Analysis

An Egress Analysis shall be a part of all submissions in which the proposed work effects the movement of people through the space. This analysis will include at minimum, the following information:

a) Construction Classification/Occupancy Classification
Generally office space and related spaces shall be designed to meet the requirements of occupancy Group E classification and Construction Class I-B, in accordance with the latest edition of the NYC Building Code.

Indicate the occupancy classification for all equipment and storage rooms (indicate type of storage) to ascertain the proper fire resistance rating for walls separating these rooms. Indicate the type of construction used to obtain the fire rating for all demising walls.

b) Entrance and Egress
All exit doors and their sizes to be used to exit any space must be indicated on the drawing, as well as the allowed occupant load per exit width as per NYC Building Code.

c) Travel Distances
Travel distances to primary and secondary exits must be indicated following the path of travel through each space.

No equipment, partitions, fixed tenant installations, or other facilities should be located where they may block or interfere with egress.

4. Occupant Load

The office floors have been designed to sustain a live load, including partitions, which shall not be exceeded. In areas where there is a concentration of files, storage, or heavy equipment, verification of the structural integrity of the floor system in these areas is required. See the Structural Design Guidelines for details.

B. WALL AND CEILING CONSTRUCTION

The WTD has available for the tenant's architect/engineer standard reference details which show examples of the depth and clarity of information required to be shown on the drawing for the construction of various wall and ceiling types. See attached WTC Standard Architectural and Structural Details.

1. Core Walls

All core wall shall have a 2-hour fire rating as required by the NYC Building Code.

2. *Demising Walls*

Walls separating tenants shall have a minimum 1-hour fire rating unless otherwise indicated by occupancy/use group.

3. Corridor Walls

Corridor walls shall have a fire-resistance rating of 2-hour as required by WTC and have a self-closing swinging type doors 1-1/2 fire resistance-rating.

4. Ceiling Construction

On tower floors with double trusses the WTC requires the suspended ceiling to be installed as detailed on the Standard Architectural Details STR-10 through STR-14 attached. All other areas and special installations must meet the requirements of the New York City Building Code.

A BS&A or MEA resolution of approval is required for ceiling tiles.

5. WTC Standard Ceilings

The new building standard suspended ceiling in public corridors is, 24" X 24" X 3/4" *mineral fiber lay-in tile, Ultima RH90, beveled tegular, No.1782 for* 9/16" slotted tee grid, by Armstrong.

C. MATERIALS AND METHODS OF CONSTRUCTION

No material, assemblies, forms, method of construction, equipment, machinery and devices will be acceptable for the intended use unless:

Accepted by the Code test method by the Materials and Equipment Acceptance (MEA) division of the Office of the Commissioner of the Buildings Department of New York City.

OR

Approved by the New York City Board of Standards and Appeals (BS&A)

Resolutions of MEA or BS&A shall be submitted for review. Manufacturers' or distributors' letters will not be acceptable.

1. Floor Coverings

The architect or engineer-of-record is required to obtain, certify, and supply for review documentation that the carpet has been tested by an independent laboratory (approved by the City of New York), showing the complete test data results in accordance with the New York City Building Code. Manufacturer's or supplier's data is unacceptable.

Carpet and carpeting assemblies shall not be installed in stairways designed to meet building code exiting requirements.

Carpets should be (but are not required to be) installed utilizing the "tackless" method which allows easier removal under the tenant's restoration obligation. The padding should be cemented to the subfloor at the perimeter with a "release" adhesive. Adhesives in all instances must be non-flammable. If rubber padding is used, all seams must be taped.

The tenant is required to provide all necessary access to trench header ducts and junction box cover plates for under floor conduit systems. If access is not provided, the tenant assumes all costs associated with the pulling-back, removing, and reinstalling of the carpet.

2. Raised Floor Systems

All raised floor systems must have a BS&A or MEA Resolution capable of withstanding the imposed loads.

For a raised floor not more that 10" in height, a minimum of 1-1/2" clearance is required between the edge of the raised floor and the induction unit (IU) enclosure. For furniture or a raised floor more than 10 " in height, a minimum of 6" clearance shall be maintained between the edge of the raised floor and the front of the induction unit enclosure. Additional removable floor grilles should be installed on the edge of the raised floor in front of the induction unit. See

Architectural Detail ARCH-17 for installation of raised floors which meet at the perimeter induction units.

3. *Window Treatments*

The WTC standard window covering is a horizontal blind, brushed aluminum finish, with 1" slats.

4. Transparent Glass and Fixed Adjacent Glass Sidelights

Transparent glass walls are required to be marked as per BS&A Rule 501-68-SR, Rules for Governing the marking of Transparent Glass Doors and Fixed Adjacent Glass Sidelights Rule. (See Attachment "A" to these guides)

5. Fire Shutters

Where spaces are provided with automatic fire shutters used to maintain the fire-rating, a safe means of egress shall be provided for persons who may remain inside the space after the grill is closed due to fire emergency. This additional egress must be in accordance with code requirements.

6. Fabric and Vinyl Wallcoverings

All fabric and vinyl wall coverings must have a copy of the BS&A or MEA resolutions submitted for approval.

D. SPECIALTY ROOMS AND EQUIPMENT

1. Storage Areas

Provide appropriate fire separations according to occupancy classification as per the NYC Building Code.

2. Computer Rooms

See the Mechanical and Fire Protection Guidelines for inclusion of Pre-action and Halon fire suppression systems.

E. CONTROLLED INSPECTIONS

All materials, equipment, and construction designated by the Code for "controlled inspection" shall be inspected and/or tested to verify compliance with the Code. Controlled inspections shall be made and witnessed by or under the direct supervision

of a registered architect (RA) or professional engineer (PE) retained by the tenant and acceptable to the architect or engineer responsible for the plans. The inspecting RA or PE shall be independent of the contractor.

F. SIGNAGE

1. Office Tenants

The World Trade Center will provide each tenant with one door sign and directory listings in the main lobby, skylobby and on the tenant's floor. Each tenant is entitled, by lease to a 12" X 12" acrylic door sign engraved with the company name and suite number.

Tenants who desire a non-standard door sign must first obtain approval of the WTD's Tenant Services Unit before proceeding with any such installation. The maintenance, repair, replacement, etc. of non-standard door signs, is the sole responsibility of the tenant.

G. FINAL SUBMITTAL

All alterations made to tenant spaces must have "AS BUILT" drawings submitted to the Tenant Alterations Unit of the World Trade Department upon completion of the job. Such AS BUILTS shall be submitted in the form of one complete set of Mylar reproducible drawings stamped AS BUILT and signed and verified by the consultant of record and the contractor and one (1) cadd disk (3-1/2", 1.44 mega Bytes floppy).

The architect shall state in the general specification the submission of such AS BUILTS

H. RETAIL AND PUBLIC SPACE TENANTS

See "Interim Tenant Design Criterial" for aesthetic criteria in public spaces at the World Trade Center.

STRUCTURAL DESIGN GUIDELINES

A. GENERAL

Before starting any design work, the tenant's consultants must perform a field inspection of all pertinent areas to verifythat they have the latest information about all structural elements. This includes information about truss reinforcement, if any, stair openings in slab and core-hole locations..

All calculations and construction drawings shall be submitted to the Port Authority for review and approval, and must be signed and sealed by a professional engineer or registered architect who must be licenced to practice in the state of New York.

Whenever calculations are submitted, a statement shall be made next to the seal on the cover sheet that "the professiona seal and signature affixed hereon is all inclusive for the full contents of this document." Alternatively, a separate seal and signature on each individual calculation sheet will also be acceptable. Four sets of calculations will be submitted with the first submission, and four copies of each revised sheet in any required subsequent submissions.

B. CALCULATIONS, LOADS, AND DESIGN PARAMETERS

The proposed floor loads shall be compared with the allowable design loading. Drawing STR-01 shows the allowable loading for a typical tower floor and also indicates limitations on the dimensions of concentrated loads. The design loads take into consideration all live load reductions on the trusses and also include the weight of partitions. For additional information or information on the other buildings in the complex contact Mr. Suren Batra WTC Structural Engineer, at (212)435-2409

The tenant's loads must not overstress the existing structural system. If required, the floor system can be reinforced. Calculations to compare the proposed loading with the allowable, and any revision to the floor system shall be made in conformance with the latest edition of the NYC Building Code. Both, "Allowable Stress Design" and "Load Resistance Factor Design," are acceptable methods of design.

When applicable, in place of a detailed investigation of the stresses in the existing structure, the moments and shears due to the tenant's proposed live loads may be compared with the moments and shears produced by the original design live loads shown on drawing STR-01.

The corner sections of a typical floor, work as a two-way truss system. Portions of the corner areas can take greater loads than those shown on drawing STR-01. An analysis of the tenant's loads based on a two way truss grid may yield satisfactory results for higher loads placed in a non-critical area of the corners.

To cover an existing floor opening by a slab, all structural elements shall be designed for the strength of the adjacent existing areas, and not the theoretical design loads. This is particularly necessary for any slab which has an overload capacity to support local concentrated loads.

Show and locate on the construction drawings:

a. The weight of any equipment, or cluster of equipment, exceeding 500 lbs.

b. All files and shelves. Provide a legend showing each type of file or shelving unit, and indicate the size and number of tiers for files and the height for shelves.

The following minimum loads shall be used for calculations when applicable:

a. File cabinets: 33 psf per tier, includes the weight of the cabinet.

b. Open shelves for paper storage: 46 pcf of the net volume plus the weight of the shelves.

c. Mechanized file storage: Use the manufacturer's indicated fully loaded weight, or the net weight of the storage unit plus 46 pcf for contents.

d. Libraries:

   1) Aisle loading:

      -for aisle width equal to or less than 30", use 30 psf.
      -for aisle widths greater than 30", use 60 psf.

   2) Reading areas - 60 psf.

   3) Open shelves - 46 pcf of the net volume plus the weight of the shelves.

e. File rooms aisle loading:
   -for aisle widths equal to or less than 30", use 30 psf.
   -for aisle widths greater than 30", use 50 psf.

Bases (and heads) for rail posts, auxiliary columns, etc. shall be designed for the required loads. Plates and bolts are to be fully detailed on the drawings, including the location and number of anchor bolts, manufacturer, type, size, embedment length, etc.

Wherever proprietary devices are used to transfer loads, submit for review, the BS&A number, the manufacturer's name, and a catalog cut.

C. CORE HOLES AND OTHER SLAB PENETRATIONS

A survey of slab penetrations in the vicinity of the proposed cores shall be submitted as early as possible in the review process, so that the need for repairs to the existing cores may be determined. Repairs shall be made as per attached details STR-06 through STR-08

Proposed penetrations or cores in the slab shall be clearly identified on the construction drawings for the trade that is expected to do the coring.

The dimensioned location of all new penetrations or cores shall be shown on the "As Built" drawings.

Proposed penetrations or cores in tower slabs shall meet the criteria for location, spacing, etc. as specified in the attached drawings STR-02 through STR-08, and Sructuctural Design Specifications, page 12. New penetrations or cores are not allowed in "Prohibited" areas. Penetrations or cores may be located in "Restricted" areas. However, damaged steel must be repaired as per details shown on drawings STR-06 through STR-08. It is advisable to avoid "restricted" areas in the design. Each "restricted" area penetration or core shall be labelled as such on the drawing and reference made to STR-06 through STR-08, which shall then be included in the contract set.

Proposed cores in the vicinity of "Prohibited" or "Restricted" areas, shall be dimensioned on the drawings using the face of the glass as a reference.

D. HUNG CEILINGS

Where new ceilings are to be installed, unless otherwise noted, it will be assumed that the existing ceiling suspension system will be removed and replaced.

For ceilings in the double truss areas of the towers, the span between trusses requires that the size of the carrying channels and caddy clips be larger than that required by the NYC Building Code. Provide the details shown on Drawings STR-09 through STR-14 on the construction drawings.

The carrying channels must be perpendicular to the existing trusses. Concrete anchors into the slab shall only be used:

1. At the end of the trusses where the truss lower flange is at a higher than normal elevation (see Section S-1, on STR-10) **and,**

2. Where the the hung ceiling is not continuous at a partition and there is no truss within 10" of the partition (see STR-13, "Typical Section at Partition Wall."). In all other cases the ceiling rods shall be hung from the trusses.

In the rest of the facility (without double trusses), the ceiling shall comply with the NYC Building Code, Reference Standard 5-16, figures 3A, 3B and 3C. Concrete anchors shall be one of the preapproved anchors listed in the Structural Design Specifications, Section B. A complete detail with all the specified materials shall be shown on the drawings. The detail shall include the type and size of materials and the embedment length of anchors.

E. HVAC EQUIPMENT

For all HVAC equipment provide on the drawings the weight, dimensions, the proposed locations, and specify whether they are floor mounted or hung from above.

For hanging ducts, fans and AC units under 500 lbs., refer to the details shown on Drawings HVAC-21 through 28. The tenant's consultant is still responsible to verify the integrity of the existing structure from which the units are hung (information on the tenant loading from the floor above is available from WT Tenant Services). Where the weight of the unit exceeds the limits shown on the above drawings, calculations must be provided showing that the unit's proposed support system can carry the load.

For floor mounted equipment, provide calculations showing that the existing construction will not be overstressed due to the weight of the units and show all mounting details on the drawings.

F. WALLS

Where there is a wall over an opening such as a door or over a non-supportive material such as plastic, glass, etc., either a suitable lintel shall be designed or the wall may be suspended by studs from above. However, the top and bottom connections and diagonal braces attached to the slab above (where required for stability of the wall) shall be appropriately desinged and detailed on the drawings.

G. EXISTING STEEL

Holes shall not be made in existing steel for hanging purposes. Welds shall not be made to the trusses. BS&A or MEA approved clamps shall be used.

STRUCTURAL SPECIFICATIONS

1. CORING CRITERIA AT TOWER P/T CELLS AND UNDER INDUCTION UNITS

Scope and General Notes

1. This criteria applies only to those holes cored into the Power/Telephone cells and under induction units and only in the following typical tenant floors:

   1 WTC 10 to 40, 45 to 74, 78 to 105
   2 WTC 14 to 40, 45 to 74, 78 to 106

2. For modifications of criteria at stair and escalator openings at floors 45 to 48 and 78 to 82 in both towers see Drawing STR-04.

3. Existing cored holes being reused are to be included in this criteria.

4. Maximum core size is 4" diameter, where permitted. Minimum average center to center spacing along a Power/Telephone cell for any four (4) consecutive cored holes including abandoned and filled holes is 1'-4". For restricted and prohibited zone destinations, see notes 5 and 6. For spacing criteria along Power/Telephone cells adjacent to holes offset from cells . see Drawing STR-05.

5. Restricted Zone:

   Carefully locate cores to avoid cutting #4, #5 and #6 rebars, or repair cut and damaged rebars.

   Where the proposed location of a new hole can be changed in order to clear the existing rebars and avoid the need for repairs, use a bar locater or electric hammer the slab to locate the rebars.

   See Drawing STR-06 through STR-08 for rebar repair details.

6. Prohibited Zones:

   Coring is prohibited, except within the induction units at the Power/Telephone Cells only, which should be considered a restricted area and as noted in part plan detail at building perimeter. See Drawing STR-03.

   See Drawings STR-06 through STR-08 for rebar anchor repair details.

7. Existing cored holes which are to be abandoned and which do not have damaged rebars or column straps are to be filled with non-shrink grout. See detailed requirements rider C, paragraph 15 of the Tenant Alteration Application. Abandoned core holes which require repairs to straps will be repaired by the Port Authority.

8. Where concrete or fill material is to be removed, exercise due care not to damage existing reinforcement. Under no circumstances should column strap anchors be damaged.

9. Extension dimension are measured from the glass face at the exterior wall.

10. Drawings of the proposed core locations are to be submitted by the tenant for review. World Trade Construction must be notified in advance when coring or other work is to start so that provisions can be made for inspection.

11. Remove rust, grease, cement and other contaminants from structural steel and rebar surfaces before welding.

12. Tenant shall submit certification that welders are qualified in accordance with the NYC Building Code and with applicable laws and requirements for each specific welding procedure and process which the welder will use in the work.

13. Where information in the drawing conflicts with information in Rider C of the Tenant Alteration Application, this drawing governs.

Codes and Material

1. All work shall conform to the requirements of the New York City Building Code, latest edition and revision.

2. Where more stringent, the latest edition, with supplements to date where applicable, of the following codes shall apply to the work:

   a. American Institute of Steel Construction, "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings." Supplement 1 is specifically excluded.

   b. American Concrete Institute, "Standard Building Code Requirements for Reinforced Concrete" (ACI 318).

   c. American Welding Society, "Structural Welding Code - Structural Steel (AWS D1.1) and Reinforcing Steel" (AWS D1.4).

3. Added structural steel plates shall conform to ASTM A36.

4. Added rebar shall conform to ASTM A615, Grade 60.

5. Welding materials for structural steel shall be E7018 conforming to AWS A5.1 "Specifications for Covered Carbon Steel Arc Welding Electrodes."

6. Welding materials for reinforcing steel shall be E7018.

7. Non-Shrink Grout shall be Crystex by L&M Construction Chemicals Company, or an equivalent material acceptable to the WTC.

2. LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSS

NOTES:

1. Materials

   Concrete Anchors - 3/8" diameter Liebig safety bolts (type LSN or LSH) with a minimum embedment length of 1-3/4", or Hilti HSL or HSLB anchors, size M8 with a minimum embedments length of 2-1/2" and a maximum embedment length of 3".

   Clip Angles - Hot rolled ASTM A36 steel.

   Hangers - 1/4" diameter A36 galvanized steel rod

   Carrying Channel - 2" cold rolled channels (Fy=33ksi minimum). Minimum weight 590 lbs./1,000 linear feet (painted).

   Hanger to truss connection - at cover plate only

   a. Thickness of bottom flange of truss t < 0.75":

      Caddy heavy duty flange clamps manufactured by Erico Products Inc. BSA 1312-64-SM.

   b. Thickness of bottom flange of truss t > 0.75":

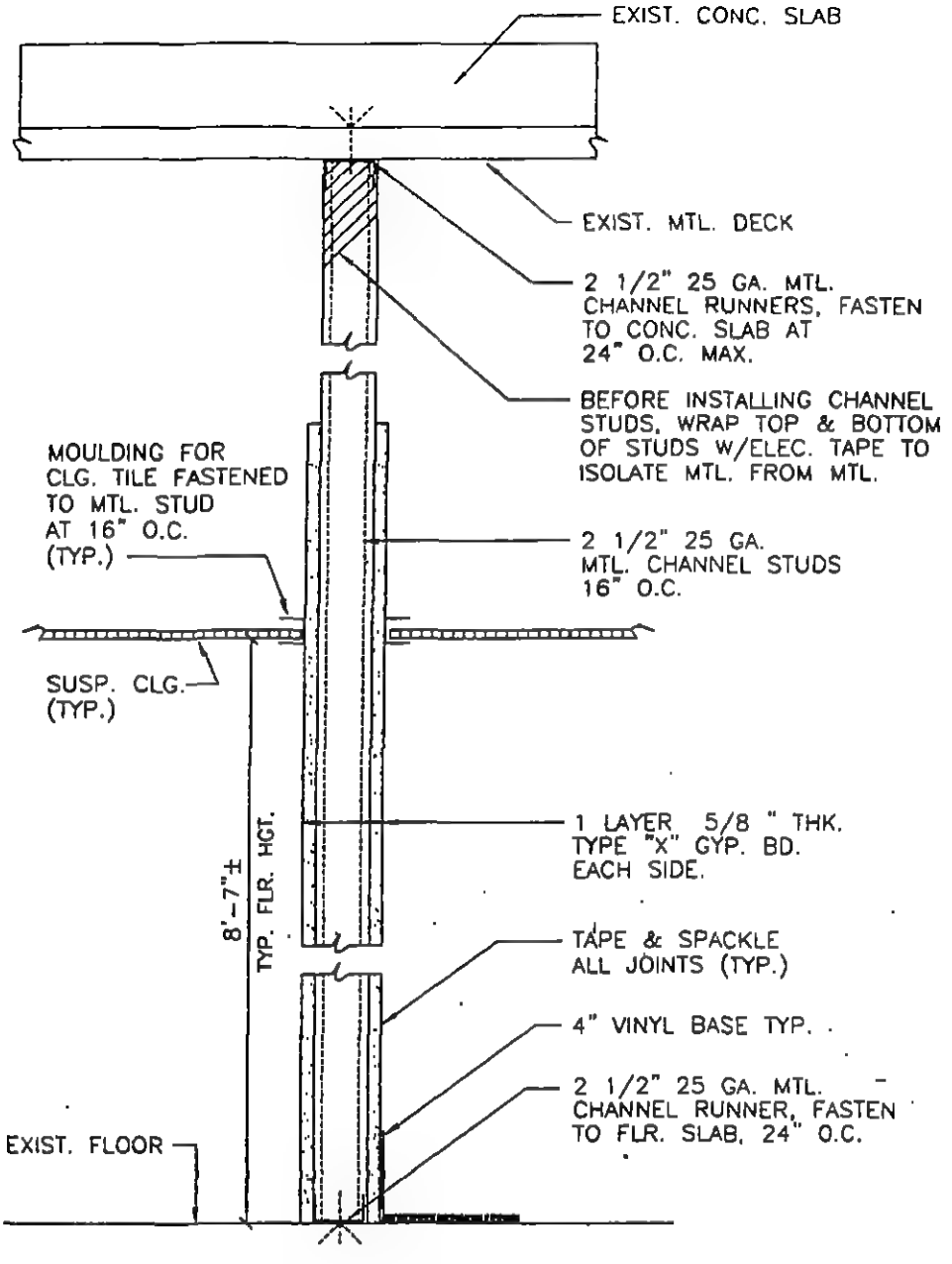
      Universal C-clamp Fig. 93 (wide throat) 0.41 pounds each as manufactured by Grinnell Corp., or approved equal. Install C-clamp with set screw in top position.

      Hanger to carrying channel - Caddy Gat channel clamp, Model 4B2LS, as manufactured by Erico Products Inc. BSA 131-68-SM.
      Wire ties - 16 Gauge stainless steel AISI - Type 304 Monel metal.

2. Removal of fireproffing shall be kept to a minimum and shall be replaced by the contractor as directed by the Port Authority.

3. The contractor shall be required to submit catalog cuts, samples, layout drawings and details of all components of the ceiling support system for the Port Authority's review and approval prior to the start of any work in the field.

4. The Ramset fastening system with Ladd drive pin number 684 (1-1/2" long), power level "RED" for installation, and the Ladd ceiling clip number 651 is permitted to substitute the hanger top connection detail shown in Section S-1 on STR-10, anchored into 3000 psi light weight concrete slab over galvanized metal deck.

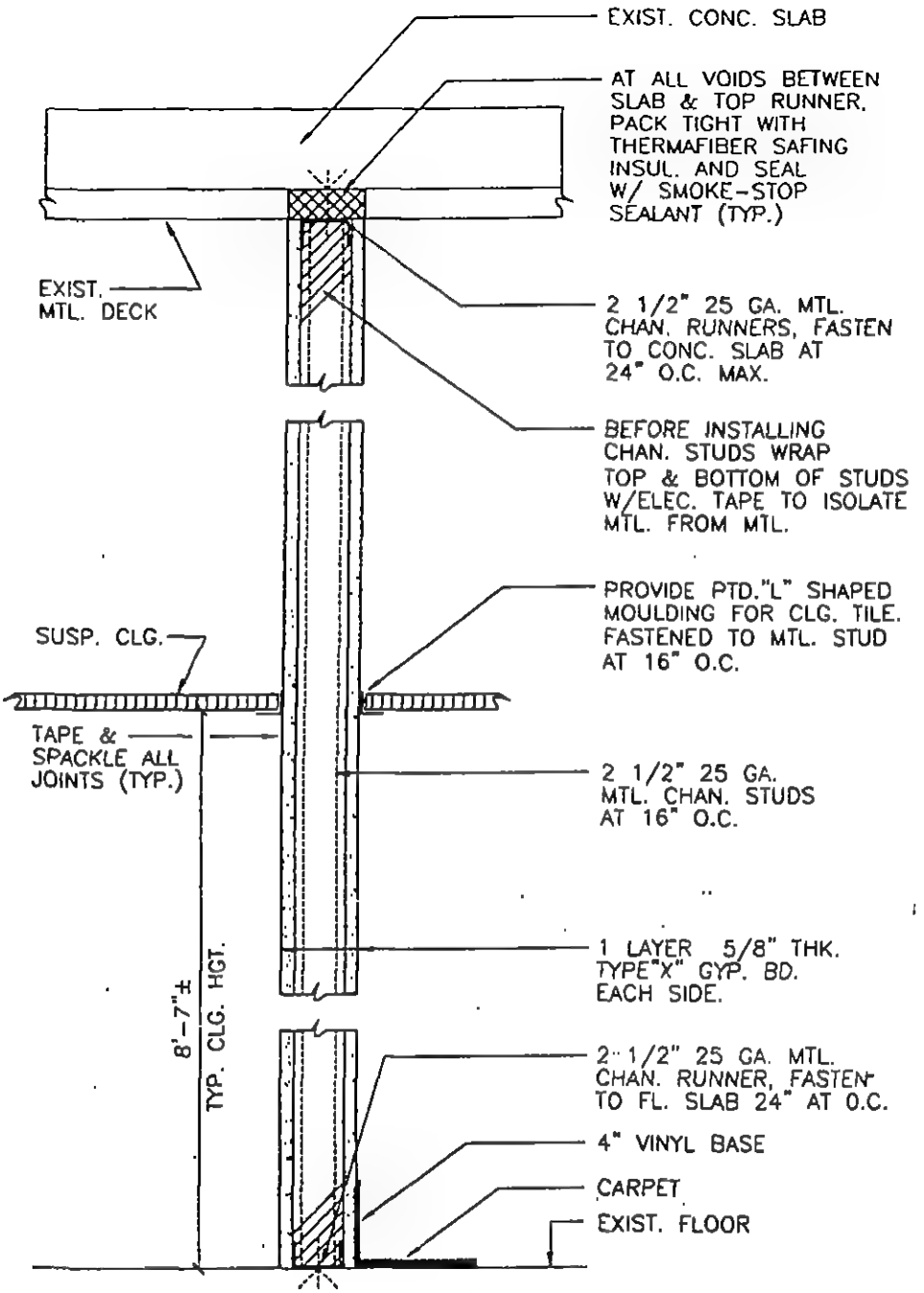


TYP. DRYWALL PARTITION

0 1' 2'

SCALE IN FEET

ARCH-01

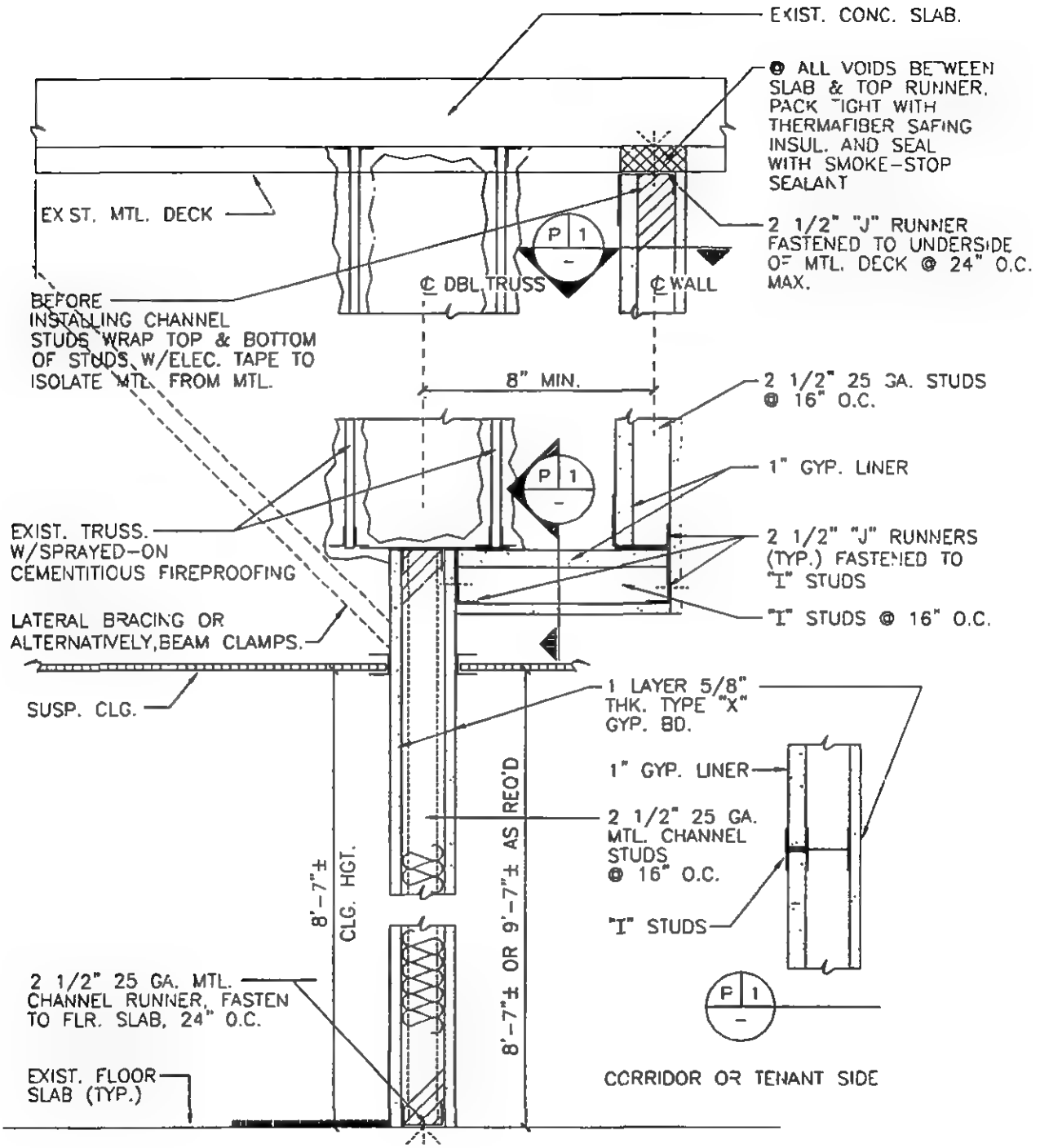


TYP. 1-HR PARTITION

0 1' 2'

SCALE IN FEET

ARCH-02

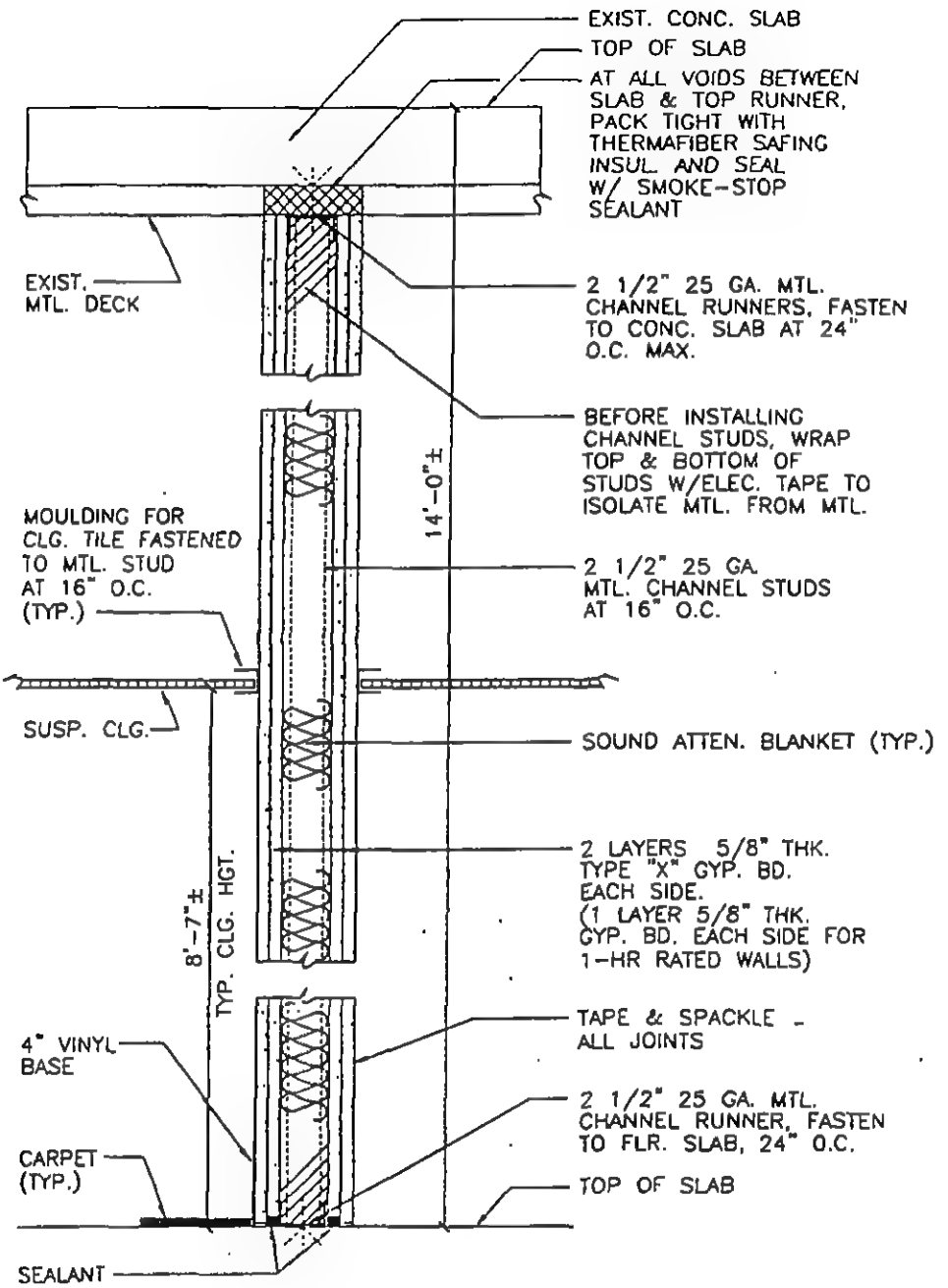


TYP. 1-HR PARTITION W/OFFSET

0 1' 2'

SCALE IN FEET

ARCH-03

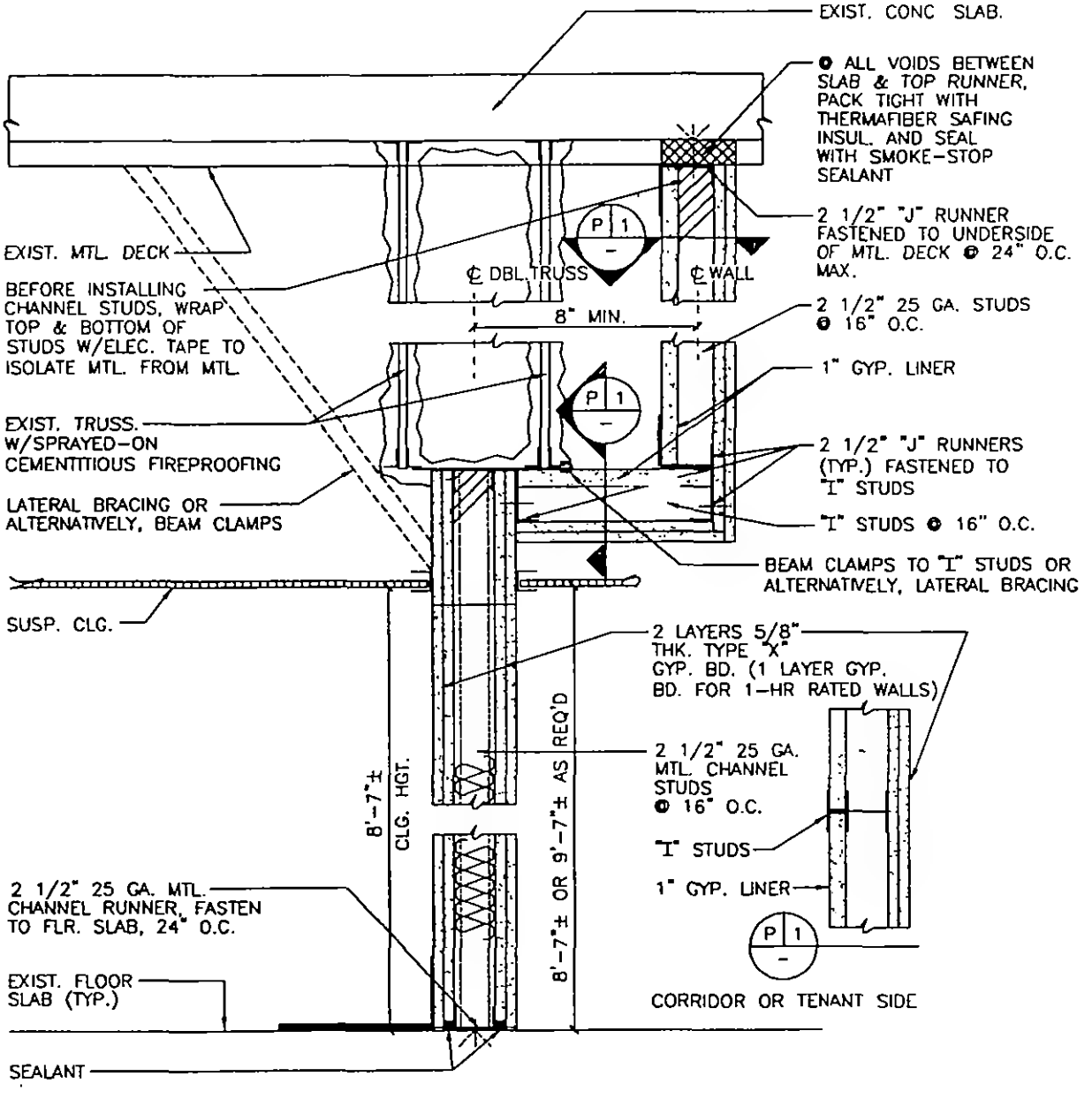


TYP. 2-HR RATED PATITION

0 1' 2'

SCALE IN FEET

ARCH-04

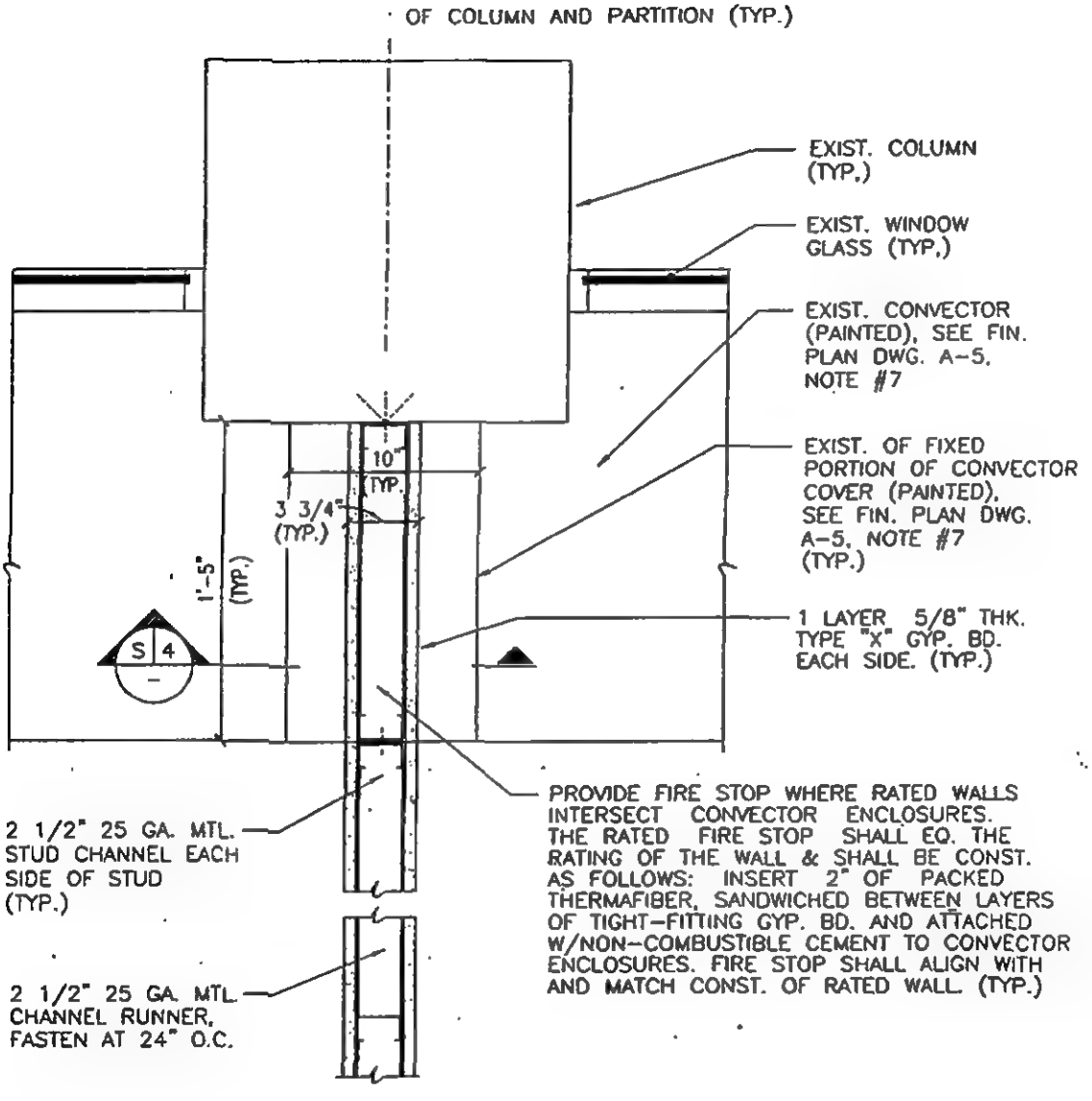


TYP. 2-HR PARTITION W/OFFSET

0 1' 2'

SCALE IN FEET

ARCH-05

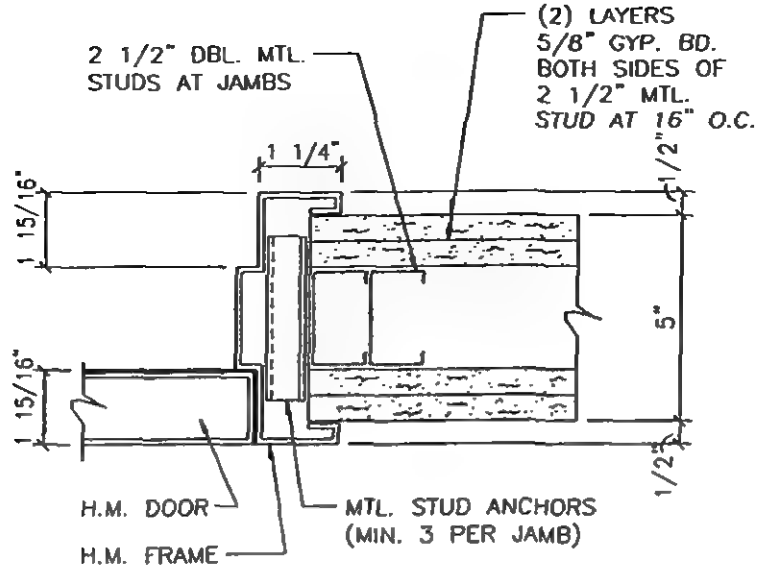


TYP. WALL PLAN AT CONVECTOR

0 1' 2'

SCALE IN FEET

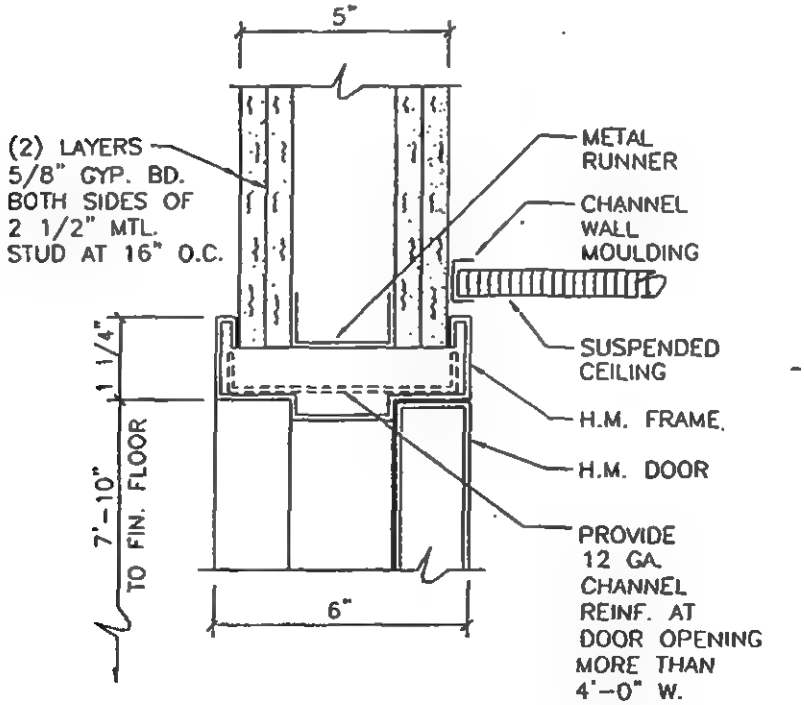
ARCH-06



JAMB DETAIL

0 6" 12"

SCALE IN INCHES

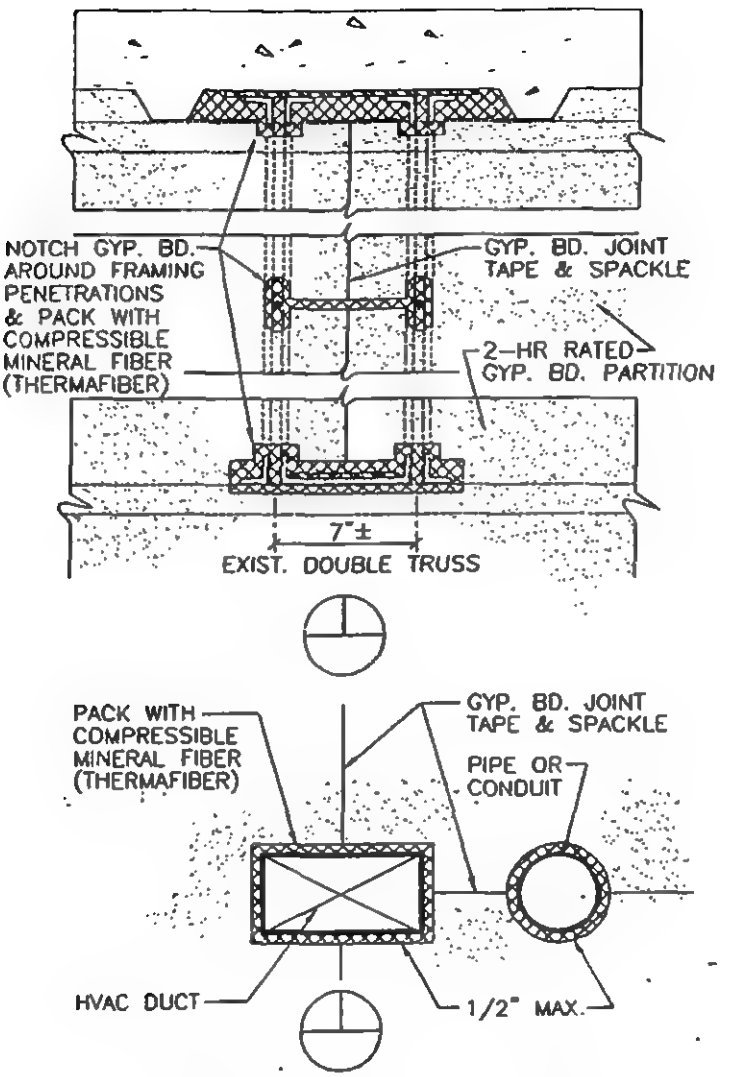


HEAD DETAIL

0 6" 12"

SCALE IN INCHES

ARCH-07

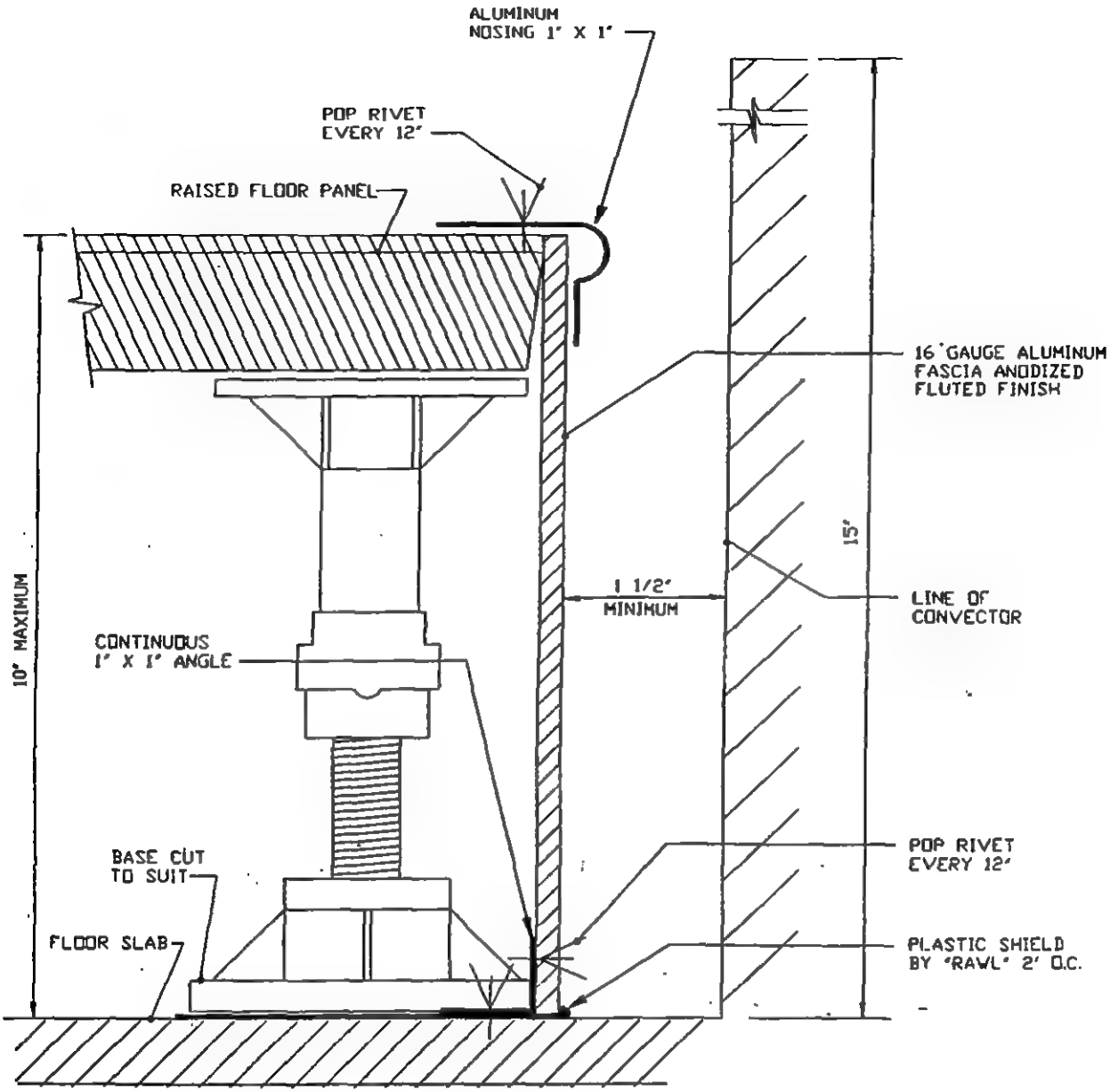


ELEVATION DETAILS OF FIRESTOPPING OF TYP. OPENING IN RATED WALL ABOVE CEILING

0 1' 2'

SCALE IN FEET

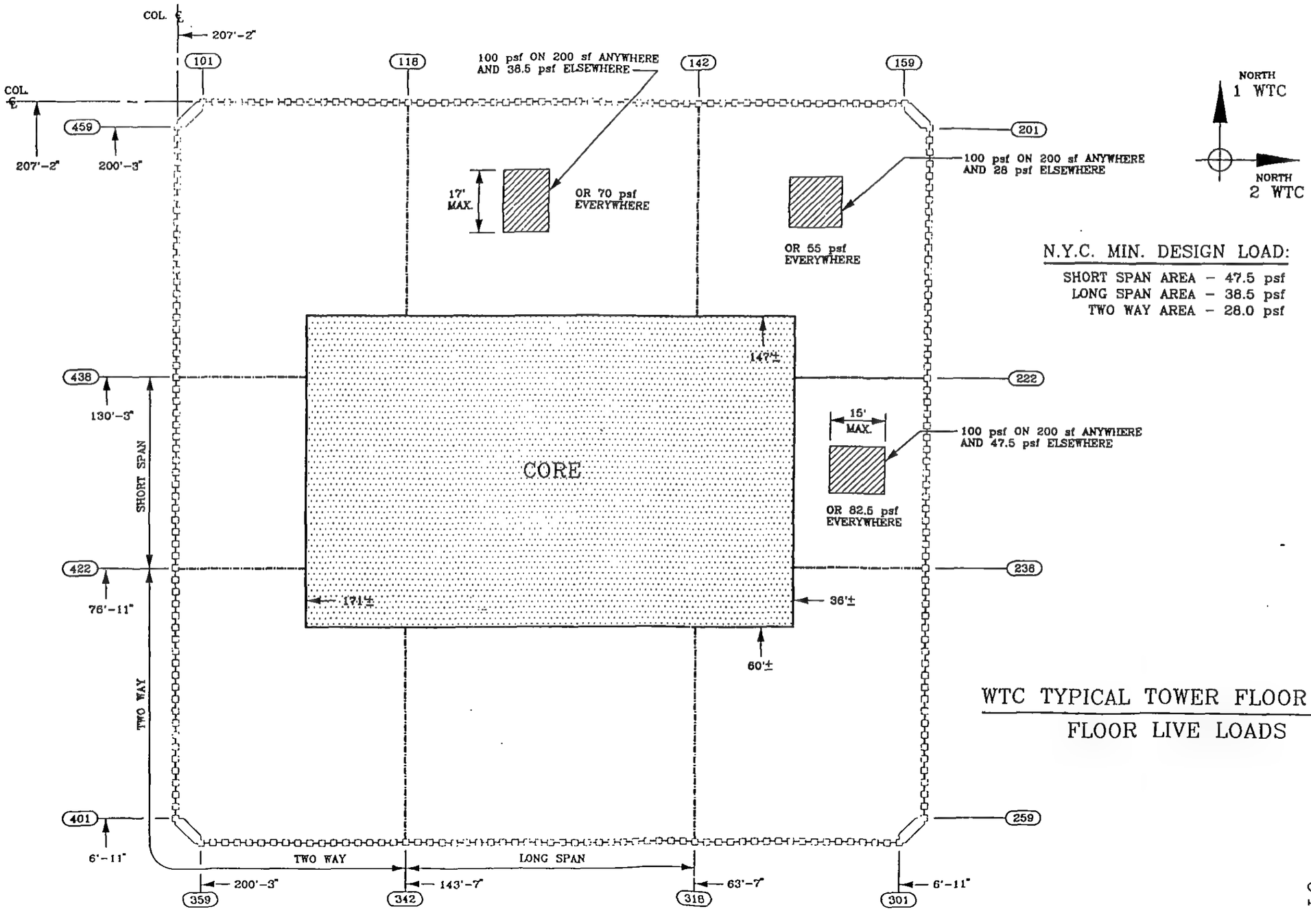
ARCH-08



DETAIL OF RAISED FLOOR @
PERIMETER INDUCTION UNITS

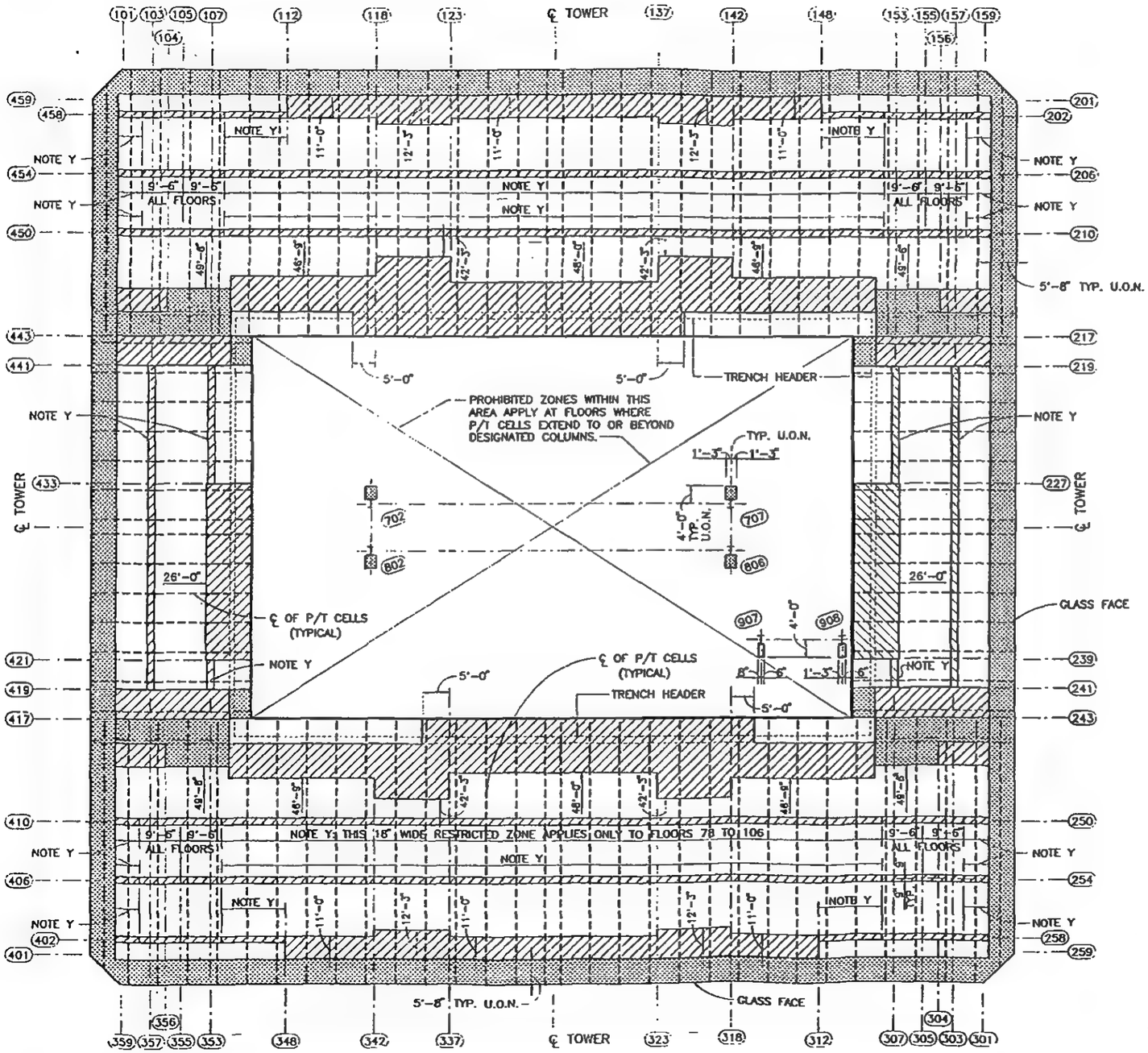
NOT TO SCALE

NOTE: ADDITIONAL FLOOR GRILLS INSTALLED ON THE RAISED FLOOR DIRECTLY IN FRONT OF INDUCTION UNIT IS REQUIRED FOR THE EFFICIENT CIRCULATION OF AIR IN THE SPACE.



WTC TYPICAL TOWER FLOOR PLAN
FLOOR LIVE LOADS

STR-01



LEGEND

- RESTRICTED ZONES
- PROHIBITED ZONES

(FOR COMPLETE DEFINITIONS SEE STRUCTURAL SPECIFICATIONS – SECTION A.)

NOTE:

FOR SCOPE AND GENERAL NOTES SEE STRUCTURAL SPECIFICATIONS – SECTION A

FOR CODES AND MATERIALS SEE STRUCTURAL SPECIFICATIONS – SECTION A

NORTH 1 WTC

NORTH 2 WTC

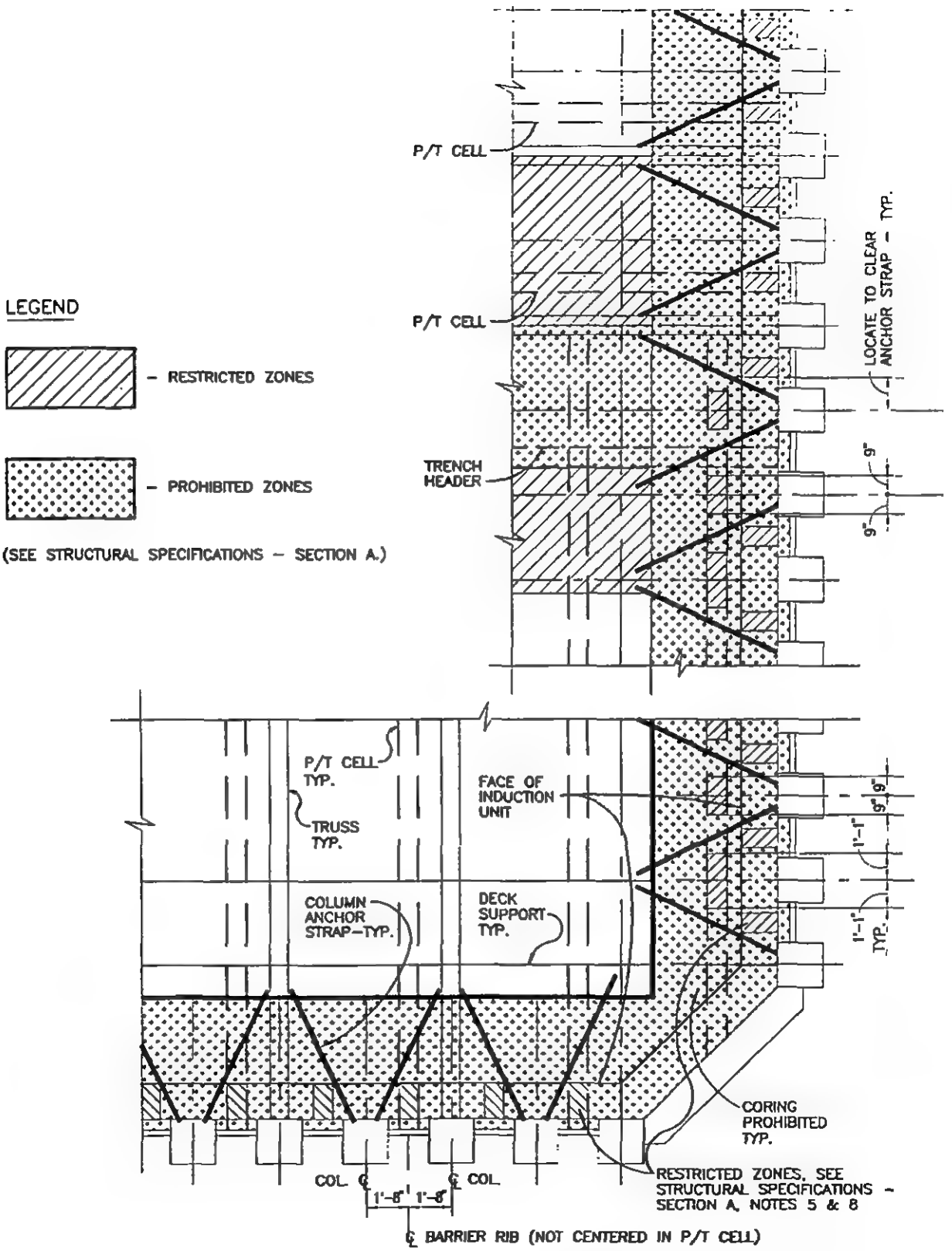
WTC TYPICAL TOWER FLOOR PLAN

CORING CRITERIA

0 5' 10' 20'

GRAPHIC SCALE

STR–02



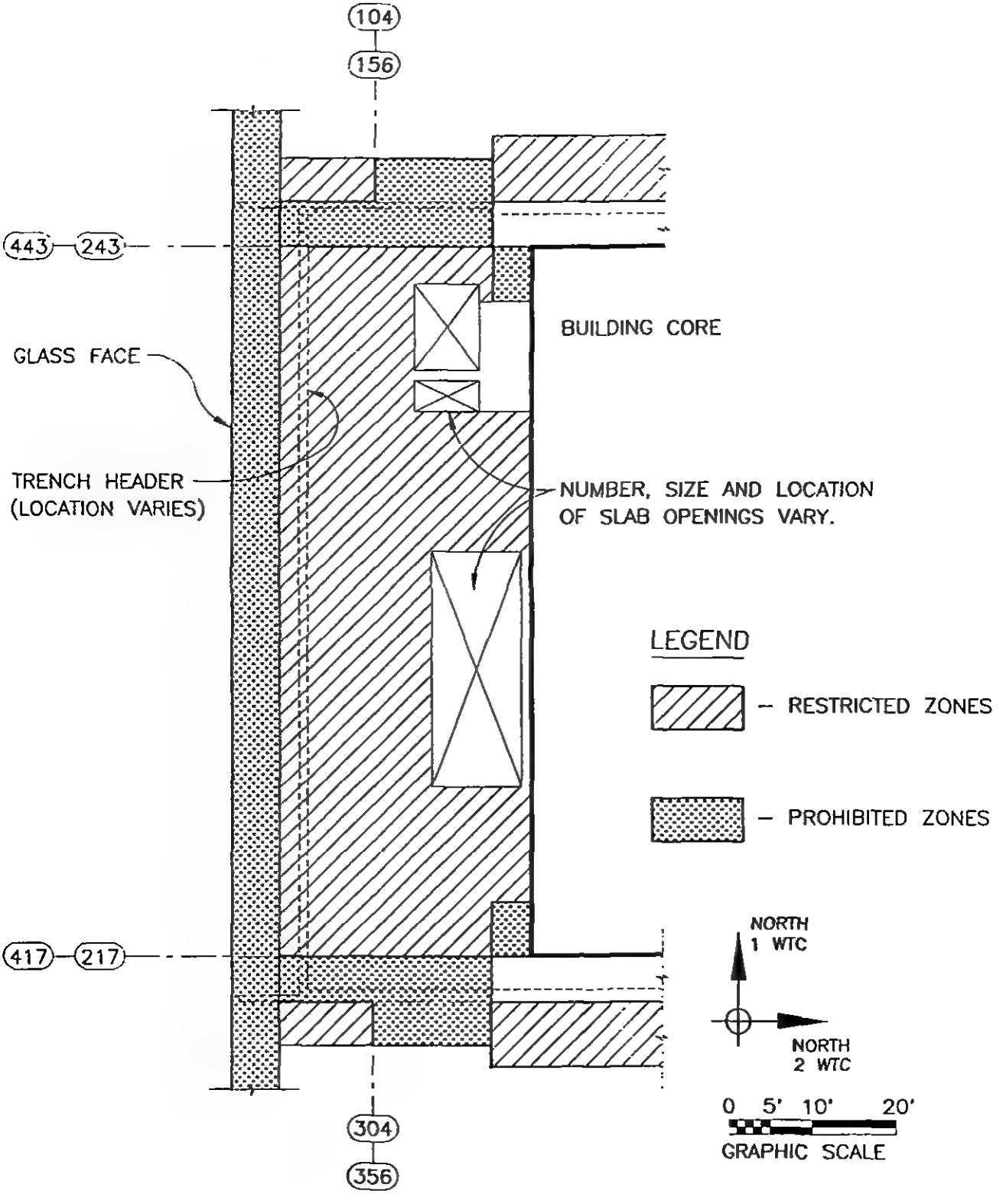
DETAIL AT BUILDING PERIMETER

CORING CRITERIA

0 5' 10'

GRAPHIC SCALE

STR–03

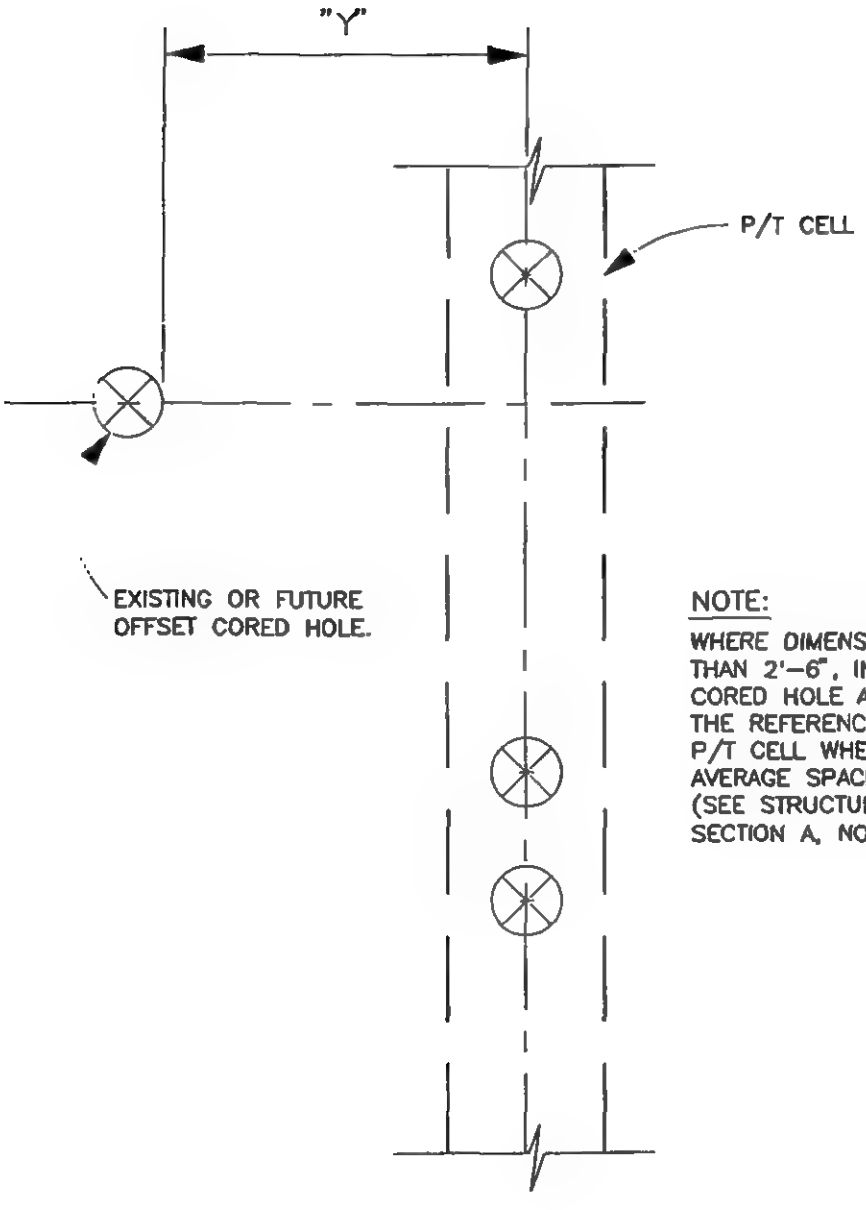


PART. PLAN – FLOORS 45 – 48 & 78 – 82

CORING CRITERIA

FOR BALANCE & INFORMATION NOT SHOWN
SEE BASIC PLAN, PAGE STR–02

STR–04



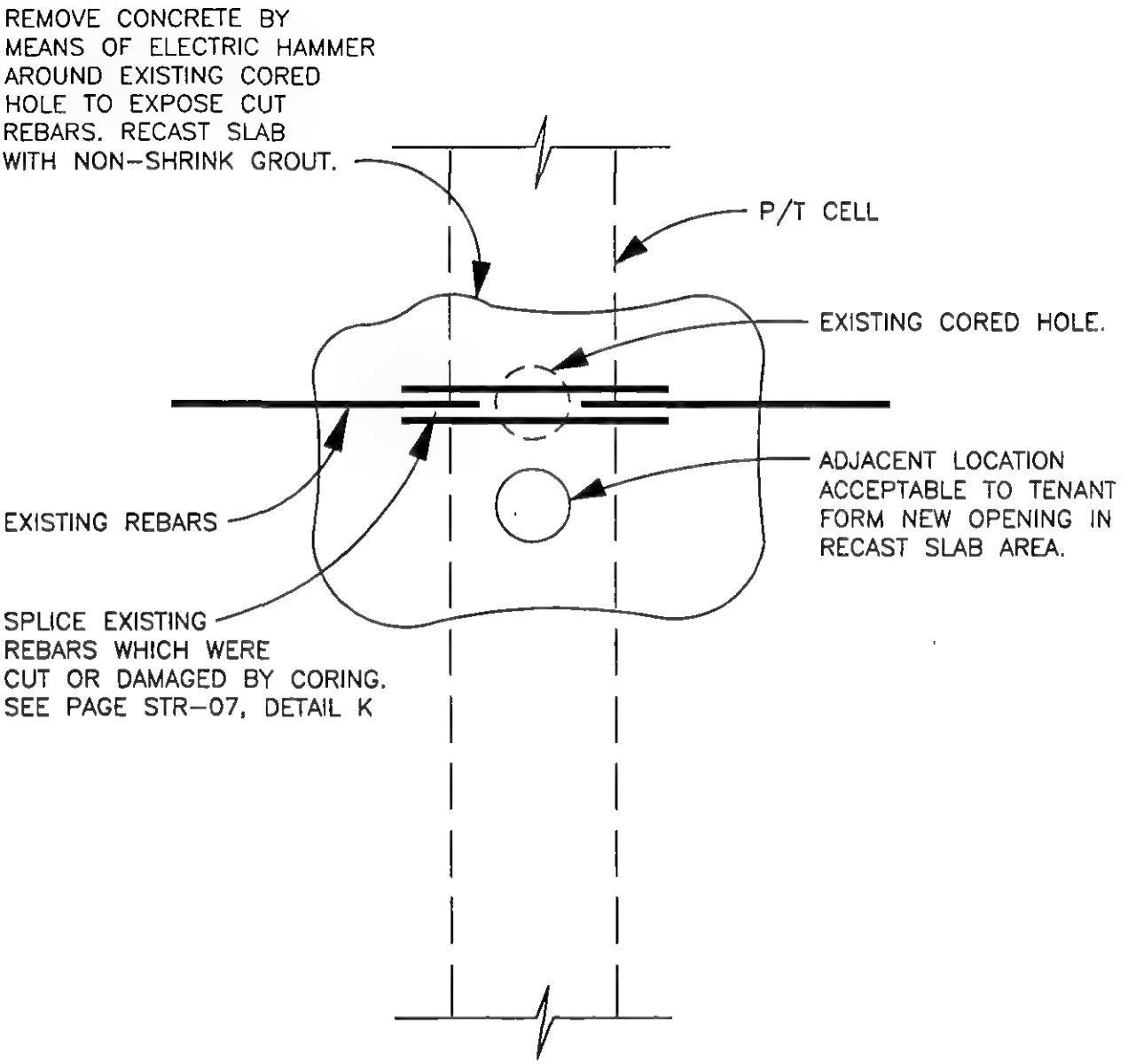
NOTE:

WHERE DIMENSION "Y" IS LESS THAN 2'-6", INCLUDE THE OFFSET CORED HOLE AS IF IT WERE ON THE REFERENCE LINE OF THE P/T CELL WHEN CALCULATING AVERAGE SPACING ALONG P/T CELL. (SEE STRUCTURAL SPECIFICATIONS – SECTION A, NOTE 4)

PLAN DETAIL OF SPACING CRITERIA AT OFFSET CORED HOLE

CORING CRITERIA

STR-05

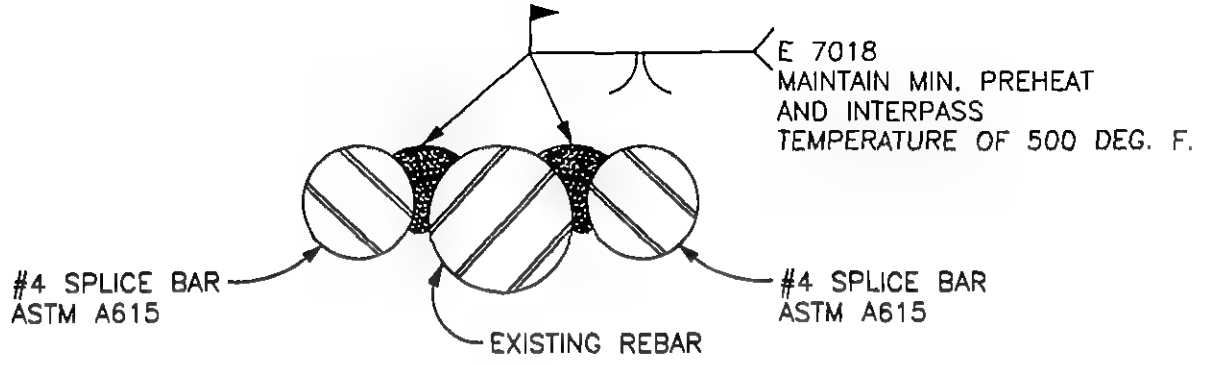


REBAR SPLICE

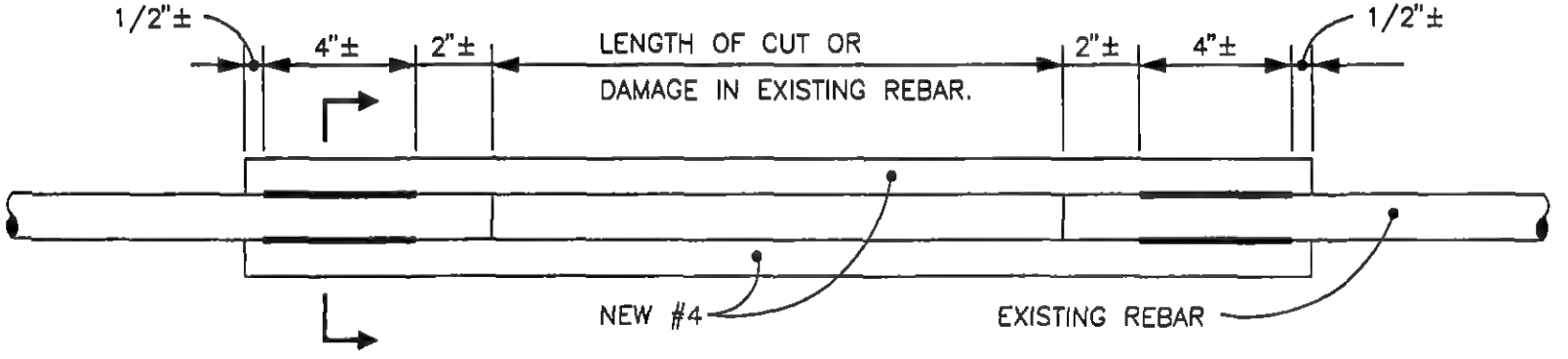
CORING CRITERIA

EXISTING HOLE, NOT PREVIOUSLY INSPECTED, INTENDED FOR RE-USE, ADJACENT LOCATION USED DUE TO NEED TO REPAIR CUT REBARS.

STR-06



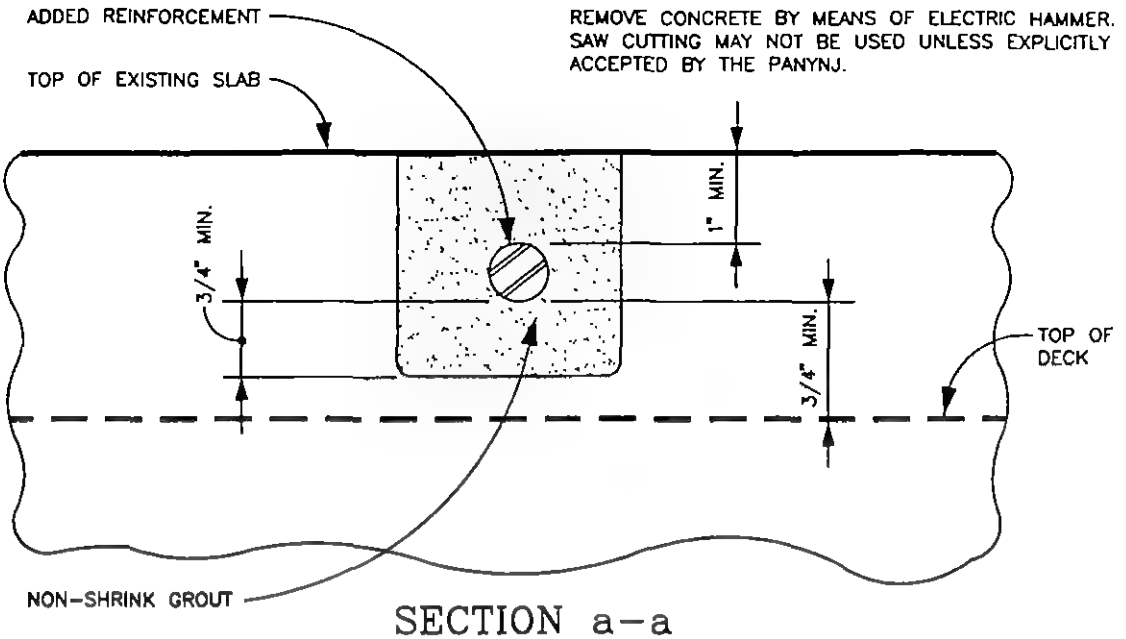
SECTION AT WELD



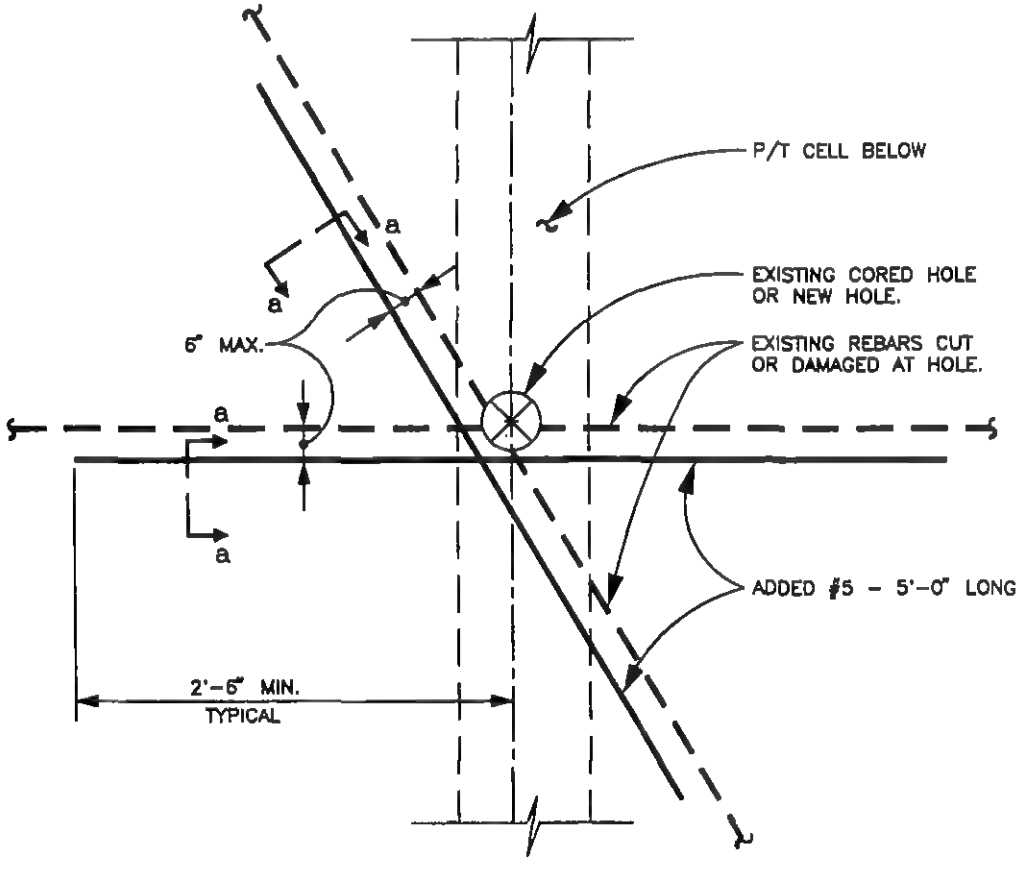
REBAR SPLICE

CORING CRITERIA

STR-07



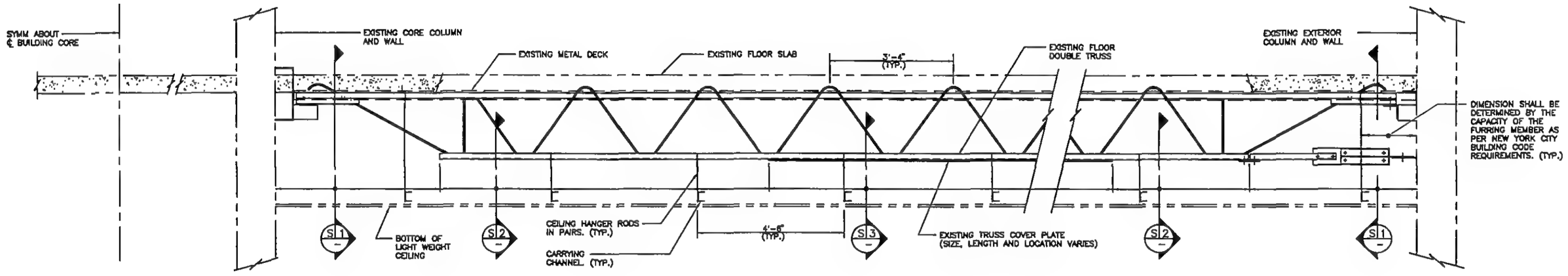
SECTION a–a



PLAN

REBAR REPAIR
CORING CRITERIA

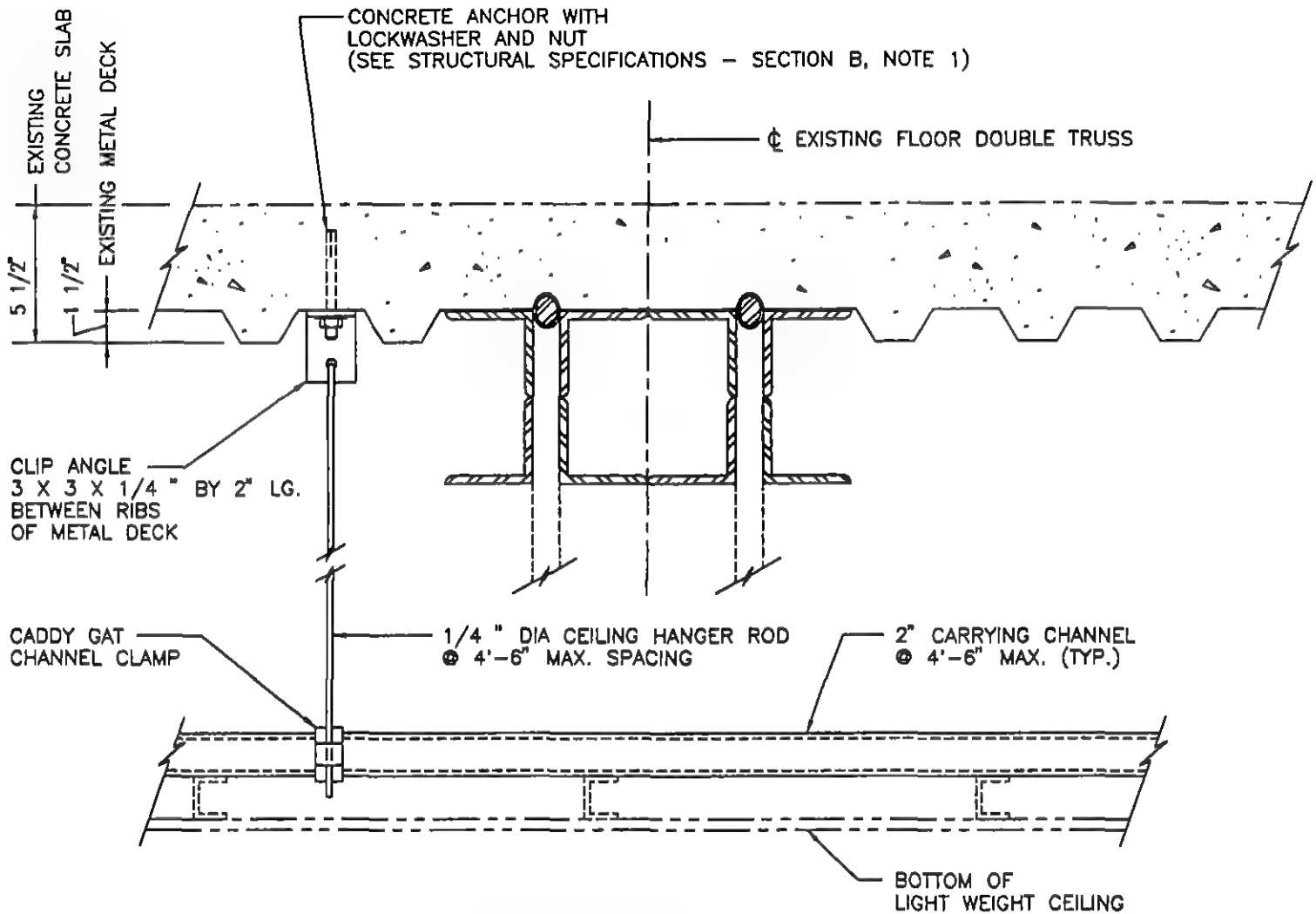
SCHEMATIC REBAR REPAIR DETAIL WHERE HOLE CANNOT BE RELOCATED. THIS DETAIL TO BE USED ONLY WITH PRIOR APPROVAL OF PANYNJ.



PART ELEVATION – TYPICAL FLOOR WITH DOUBLE TRUSS

LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSSES

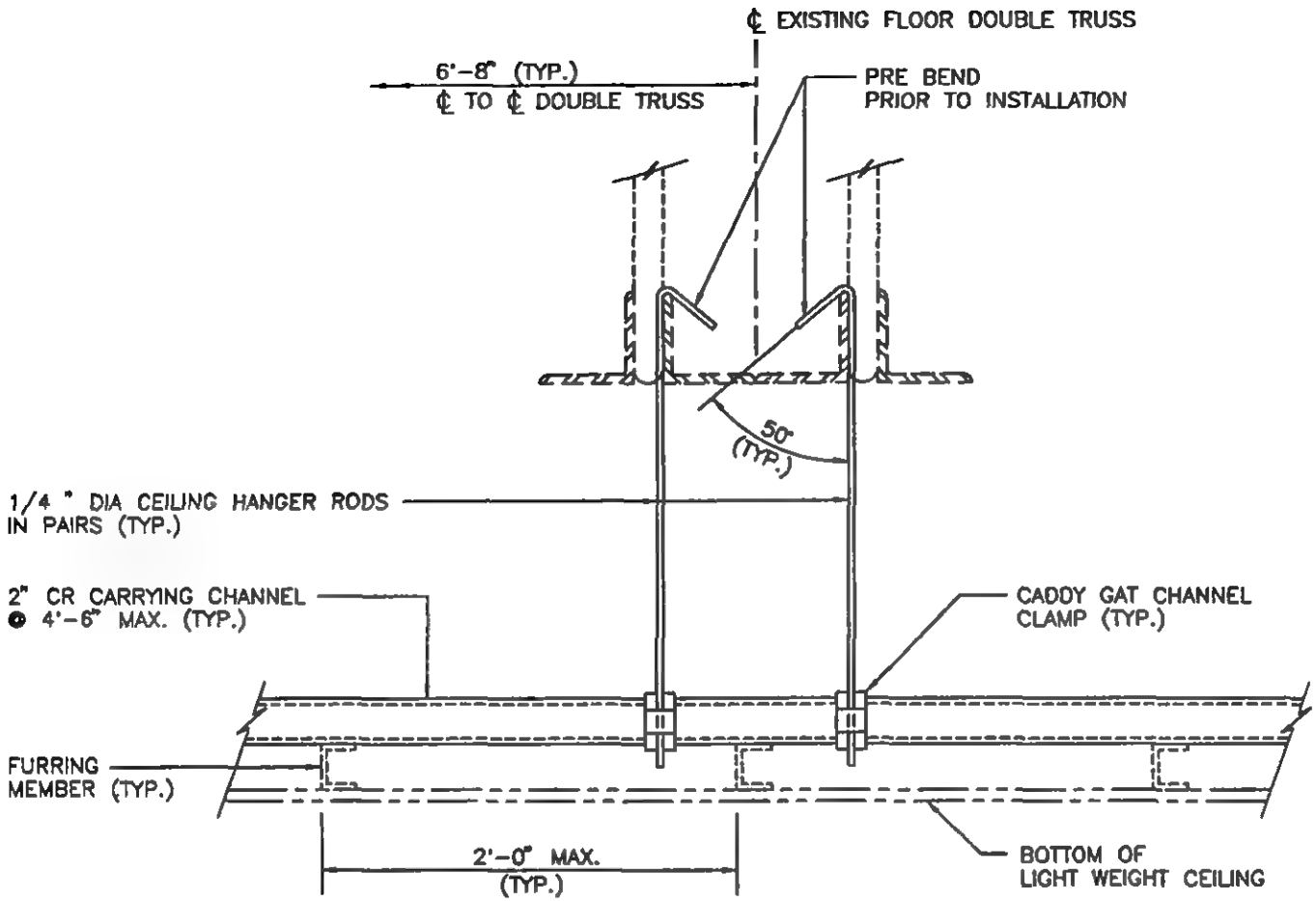
STR–09



SECTION S–1

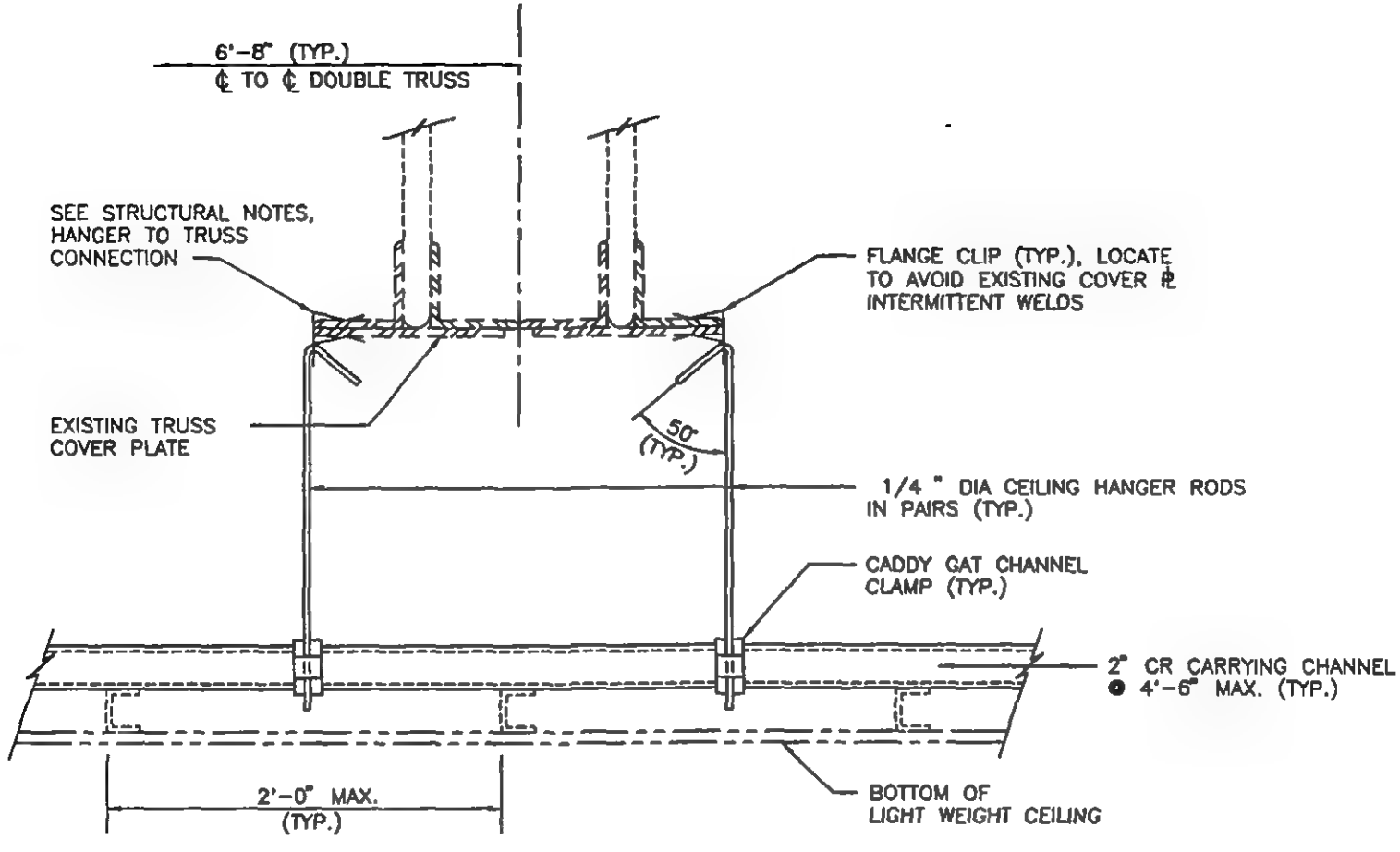
LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSSES

STR–10



SECTION S-2

LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSSES

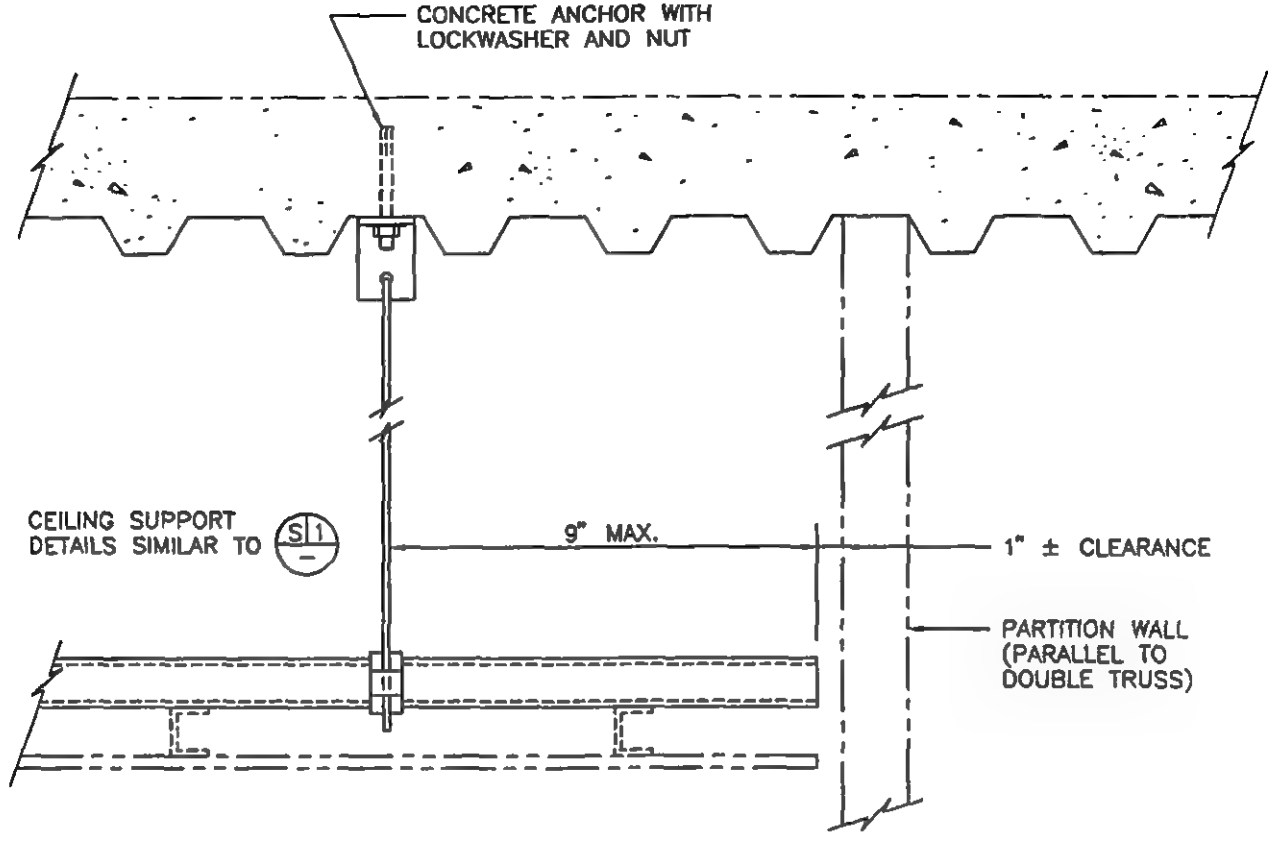


CEILING SUPPORT DETAIL
AT COVER PLATE ONLY

SECTION S-3

LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSSES

STR-12

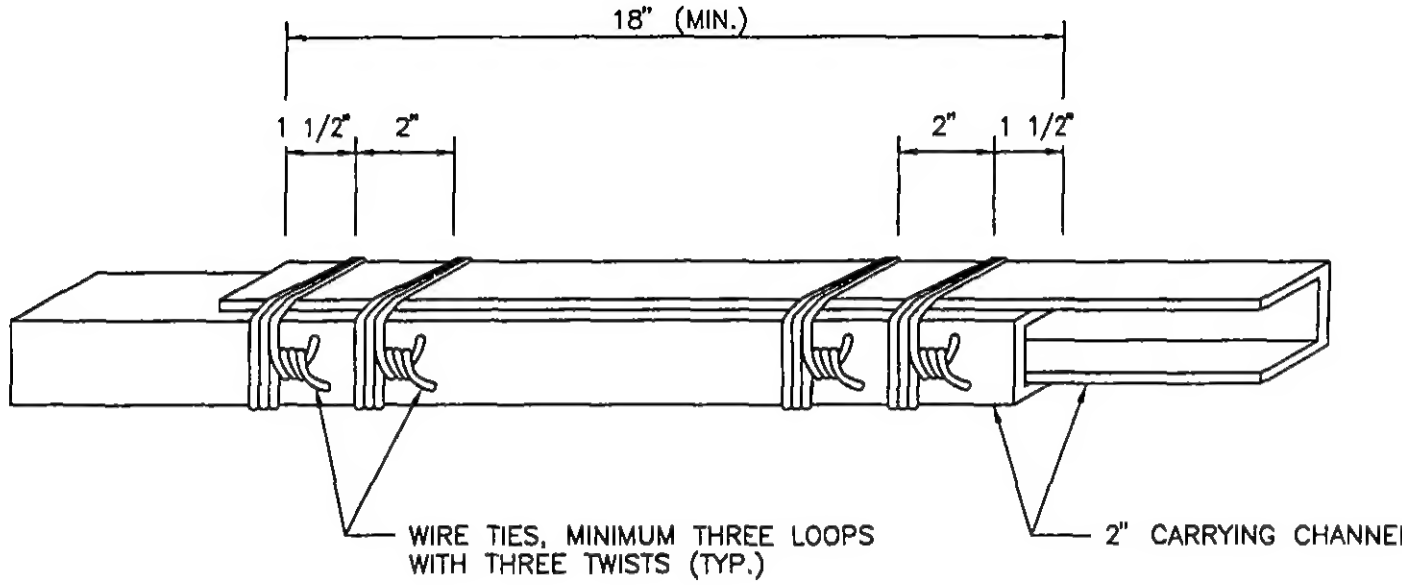


TYPICAL SECTION AT PARTITION WALL

TYPICAL SECTION AT PARTITION WALL

LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSSES

STR-13



TYPICAL "2" CHANNEL SPLICE DETAIL

TYPICAL "2" CHANNEL SPICE DETAIL

LIGHT WEIGHT CEILING SUPPORT SYSTEM FOR FLOORS W/DOUBLE TRUSSES

ATTACHMENT A

RULES FOR GOVERNING THE MARKING OF TRANSPARENT GLASS DOORS AND FIXED ADJACENT GLASS SIDELIGHTS.

Adopted by the Board of Standards and Appeals October 11, 1968, effective date November 13, 1968.

(Cal. 501-68-SR)

AUTHORITY—Chapter 27, Section 666, paragraphs 2, 3 and 4 of the Charter of the City of New York and Sections C26-189.0 and C26-191.0 of the Administrative Code of the City of New York.

PURPOSE—To require markings of transparent glass doors and fixed adjacent transparent glass sidelights to prevent personal injuries to all persons using such doors.

SCOPE—These rules shall be applicable to all structures or any part thereof excepting one and two family structures.

1.0 DEFINITION

1.1 SIDELIGHTS. Fixed panels of transparent glass which form part of or are immediately adjacent to and within six feet horizontally of the vertical edge of an opening in which transparent glass doors are located. For purposes of this rule, a sidelight shall consist of transparent glass in which the transparent area above a reference line 18 inches above the adjacent ground, floor or equivalent surface is 80 per cent or more of the remaining area of the panel above such reference line.

1.2 TRANSPARENT GLASS. Material predominantly ceramic in character which is not opaque and through which objects lying beyond are clearly visible. For the purpose of this rule, rigid transparent plastic material shall be construed as transparent glass.

1.3 TRANSPARENT GLASS DOOR. A door, manually or power actuated, fabricated of transparent glass, in which the transparent area above a reference line 18 inches above the bottom edge of the door is 80 per cent or more of the remaining area of the door above such reference line.

1.4 TRANSPARENT SAFETY GLAZING MATERIALS. Materials which will clearly transmit light and also minimize the possibility of cutting or piercing injuries resulting from breakage of the material. Materials covered by this definition include laminated glass, tempered glass (also known as heat-treated glass, heat-toughened glass, case-hardened glass or chemically tempered glass), wired glass, and rigid plastic.

2.0 REQUIREMENTS & EXEMPTIONS

2.1 Transparent glass doors and fixed adjacent transparent glass sidelights shall be marked in two areas on the glass surface thereof.

2.2 Fixed adjacent transparent glass sidelights 20 inches or less in width with opaque stiles at least one and three-quarters inches in width shall be exempt from the marking requirements.

2.3 Where the ground, floor or equivalent surface area in the path of approach to a fixed adjacent transparent glass sidelight from either side for a minimum distance of three feet from such sidelight is so arranged, constructed or designed as to deter persons from approaching such sidelight or a permanent barrier is installed in the path of approach, the sidelight shall be exempt from this requirement.

2.4 Decorative pools, horticultural planting or similar installations shall be considered as indicating that the ground, floor or equivalent surface area is not a path of approach. Planters, benches and similar barriers which are securely fastened to the floor or wall to prevent their removal shall be considered as blocking the path of approach provided they shall be not less than 18 inches in height from the ground, floor or equivalent surface and extend across at least ⅔ of the total width of the glazed area of the sidelight.

2.5 Fixed adjacent transparent glass sidelights which are supported by opaque sill and wall construction of at least 18 inches above the ground, floor or equivalent surface immediately adjacent shall be exempt from the marking requirements.

2.6 Display windows in any establishment, building or structure which fall within the definition of a sidelight shall be exempt from the marking requirements if the top of the supporting sill and wall construction is not less than 18 inches above the ground, floor or equivalent surface immediately adjacent and the interior area is occupied with merchandise or similar displays so clearly indicate to the public that it is not a means of ingress or egress.

3.0 MARKING LOCATIONS

3.1 One such area shall be located at least 30 inches but not more than 36 inches and the other at least 60 inches but not more than 66 inches above the ground, floor or equivalent surface below the door or sidelight. The use of horizontal separation bars, muntin bars or equivalent at least one and one half inches in vertical dimension that extend across the total width of the glazed area and are located at least 40 inches but not more than 50 inches above the bottom of the door or sidelight is permitted in lieu of markings.

3.2 The marking design shall be at least four inches in diameter if circular or four inches in its least dimension if elliptical or polygonal, or shall be at least 12 inches in horizonal dimension if the marking is less than four inches in its least dimension. In no event shall the vertical dimension of any marking including lettering be less than one and one-half inches in height.

In addition to horizontal muntin bars, separation bars or equivalent, any of the following methods may be used to alert persons to the presence of transparent glass doors and fixed adjacent transparent glass sidelights in their path of movement:

(1) Chemical etching

(2) Sand blasting

(3) Adhesive strips not less than one and one-half inches in vertical dimension extending across at least two-thirds of the total glazed area

(4) Decals

(5) Paint, gilding or other opaque marking materials

(6) Opaque door pulls or push bars extending across at least two-thirds of the total width of the glazed area.

4.0 REPLACEMENT AND NEW INSTALLATIONS

4.1 Any transparent glazing material used for replacement in existing transparent glass doors after January 1, 1969 shall be transparent safety glazing material. Transparent safety glazing material shall be used in all new transparent glass doors installed after January 1, 1969. The manufacturer's permanent identification mark denoting safety glazing materials shall be visible on the glass after installation of the door.

4.2 Replacement of fixed adjacent transparent glass sidelights after January 1, 1969 shall be of transparent safety glazing material or annealed glass at least one-half inch in thickness. New fixed adjacent transparent glass sidelights installed after January 1, 1969 shall be of transparent safety glazing material or annealed glass at least one-half inch in thickness. The manufacturer's permanent identification mark denoting safety glazing material shall be visible on the glass after installation of the sidelight.

NOTE: If safety glazing material is not immediately available as replacement glass in transparent glass doors and fixed adjacent transparent glass sidelights, temporary relief from the requirements rule may be sought by petitioning the Board of Standards and Appeals of the City of New York for a modification.